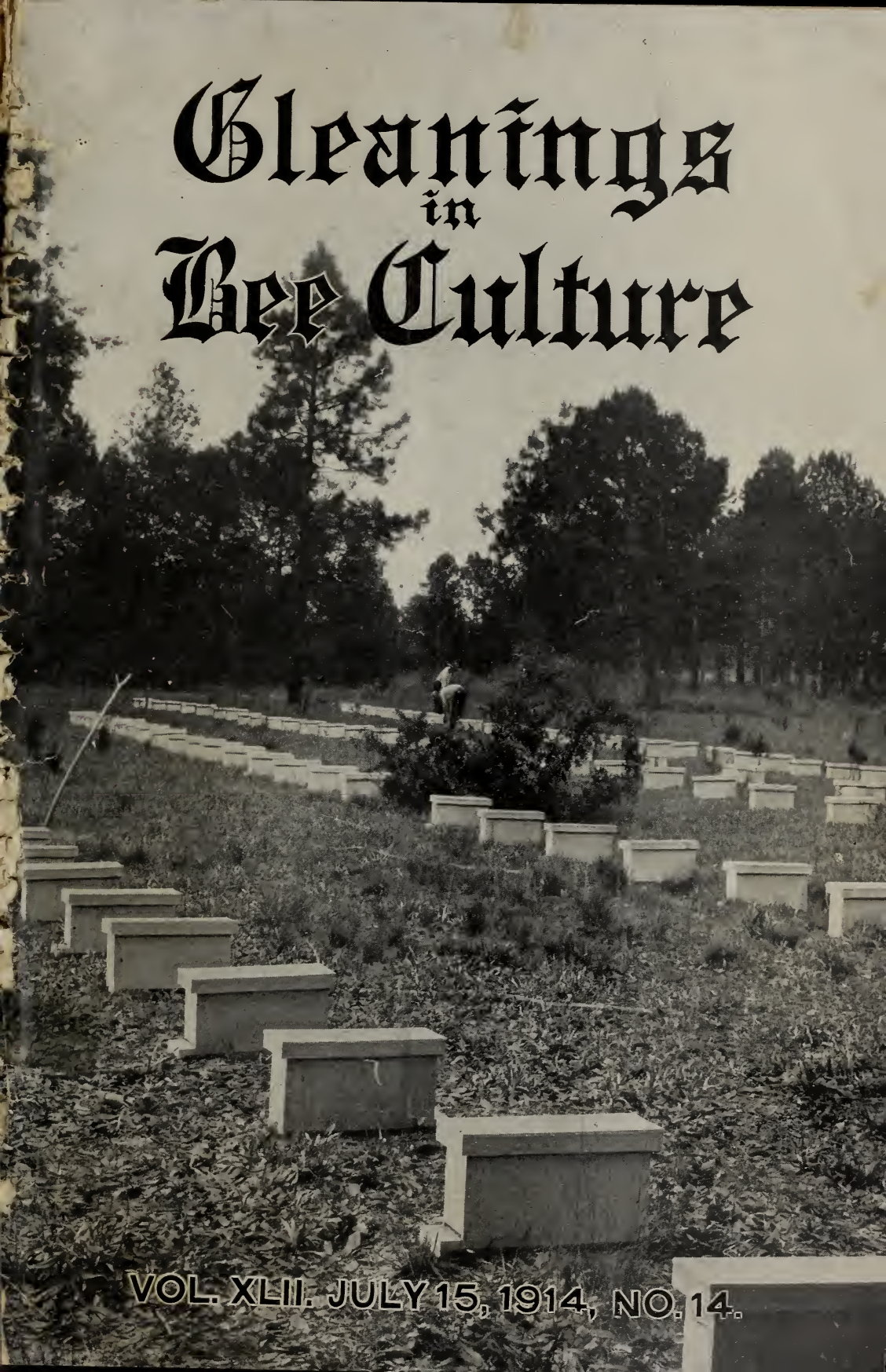
Gleanings in Bee Culture



VOL. XLII. JULY 15, 1914, NO. 14.

High-grade Italian Bees and Queens Cheap

Queens, Bees in 1-lb. Packages, Nuclei, and Full Colonies

With our nearly one thousand colonies of bees in and near Medina, and the failure of the honey crop locally, we are prepared to furnish bees in any form and in any quantity at low prices. This strain came from Apalachicola, Florida, and has been tested out for vigor and honey-producing qualities.

Low Prices on Application!

Remember, these are not cheap bees, but the best we have been able to produce in all our experience. The combs are newly drawn from frames of foundation in metal-spaced Hoffman frames. Bees have been carefully inspected, with a guarantee they are free from disease. See Special Notices elsewhere for particulars.

Queens by Return Mail

We shall be able to supply this year about 10,000 queens from our own queen-breeding yards. We shall have, as heretofore, our own Apalachicola and basswood strains of bees, and also our leather-colored Uhrichsville stock. Remember that these queens are reared with our own equipment, with our own bees, by our own men, from the best breeders that we have. The cells are built in two and three story colonies. When we have a surplus we will sell them at very low prices in lots of 25. 50, and 100.

OUR GUARANTEE

We sold last year something like 15,000 queens. There is reason for this, because our customers have come to learn what the Root guarantee means.

The A. I. Root Company, Medina, Ohio

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

NATIONAL BEEKEEPERS' ASSOCIATION GRADING RULES

Adopted at Cincinnati, Feb. 13, 1913

Sections of comb honey are to be graded: First, as to finish; second, as to color of honey; and third, as to weight. The sections of honey in any given case are to be so nearly alike in these three respects that any section shall be representative of the contents of the case.

I. FINISH.

1. *Extra Fancy.*—Sections to be evenly filled, comb firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side.

2. *Fancy.*—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white, and not more than six unsealed cells on either side exclusive of the outside row.

3. *No. 1.*—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row.

4. *No. 2.*—Comb not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than 60 unsealed cells exclusive of the row adjacent to the box.

II. COLOR.

On the basis of color of the honey, comb honey is to be classified as: first, white; second, light amber; third, amber; and fourth, dark.

III. WEIGHT.

1. *Heavy.*—No section designated as heavy to weigh less than fourteen ounces.

2. *Medium.*—No section designated as medium to weigh less than twelve ounces.

3. *Light.*—No section designated as light to weigh less than ten ounces.

In describing honey, three words or symbols are to be used, the first being descriptive of the finish, the second of color, and the third of weight. As for example: Fancy, white, heavy (F-W-H); No. 1, amber, medium (1-A-M), etc. In this way any of the possible combinations of finish, color, and weight can be briefly described.

CULL HONEY.

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour or "weeping" honey; sections with comb projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than ten ounces.

HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION, DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached to all sides and evenly capped except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood; wood to be well cleaned; no sections in this grade to weigh less than 13½ ounces.

NO. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

NO. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces or more; also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened, weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from comb by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

ZANESVILLE.—The rather unsatisfactory industrial conditions are evidently affecting the honey market, as the demand is abnormally slack. Prices remain about as previously quoted. Best grades of white-clover comb sell to the retail grocery trade at 18 to 19, jobbing prices being about 2 cts. lower. Western honey, or clover honey with traces of granulation, would be subject to some concession from these prices. Extracted in 60-lb. cans is quoted: Clover, 9 to 10; orange, 10 to 11; light amber, 7 to 8. Producers receive for beeswax 32 to 33 cash, 34 to 35 in trade.

Zanesville, July 8. E. W. PEIRCE.

Honey reports continued on page 5.

Gleanings in Bee Culture

E. R. ROOT, Editor — A. I. ROOT, Editor Home Dept. — H. H. ROOT, Ass't Editor — J. T. CALVERT, Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J L. Byer, P. C. Chadwick.

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HOW TO REMIT. Remittances should be made by draft on New York, express-order or money-order, payable to the order of The A. I. Root Co., Medina, Ohio. Currency should be sent by registered letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

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DUNEDIN, NEW ZEALAND. Alliance Box Co., 24 Castle St. *Per year, postpaid, 6/7 p.*

Contents for July 15, 1914

Honey reports continued from page 2.

ALBANY.—Although no new crop of comb honey has appeared on this market yet, there is some call, and white would sell at 16 to 17; mixed, 15 to 16. We hear the crop is good. Extracted is very dull, and we can't quote any reliable price.

Albany, July 9. H. R. WRIGHT.

LIVERPOOL.—We quote Chilian honey as very slow. The values are unchanged, and sales only retail; 100 barrels arrived per steamer Cavour. The market on Chilian beeswax is quiet; 8 sacks sold at $37.62 to $42.18 per cwt., as to quality; 34 bags arrived per steamer Cavour.

Liverpool, June 24. TAYLOR & Co.

CINCINNATI.—There is very little demand for honey of any grade, for the reason that business in general is below normal. In fact, it is very dull, and we find sales difficult to make. However, there are shipments of new honey headed this way, both comb and extracted honey, and perhaps its arrival will give the demand an impetus. Until the conditions are settled we refrain from quoting prices.

Cincinnati, July 2. THE FRED W. MUTH Co.

INDIANAPOLIS.—Crop in Indiana is generally short. Some comb honey is being offered from southern States, but at present no prices are established on new crop. Considerable comb honey is being carried over from last season, but market is almost bare of extracted honey. Beeswax is in good demand, and producers are being paid 32 cents in cash, and a slight advance where goods are taken in exchange.

Indianapolis, July 2. WALTER S. POUDER.

ST. LOUIS.—Our honey market is still dull, and we have nothing new to report. New comb honey has not yet come into this market, but some extracted southern honey has been received within the past week or ten days. Our quotations are merely nominal. We are quoting southern extracted strained, bright amber honey in barrels from 5 to 6; in cans, 6 to 6½, according to quality; dark, ½ to 1 ct. per lb. less; comb honey, fancy white clover, 14 to 15; light amber, 12 to 14; broken and leaky, 7 to 8; comb honey by case, fancy white clover, $3.00 to $3.25; light amber, $2.25 to $2.50; dark and inferior, $2.00. Beeswax we quote 35 for prime; inferior and impure, less.

St. Louis, July 3. R. HARTMANN PRODUCE Co

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS

Established 1873. CIRCULATION 35,000 Issued semi-monthly.

A. L. BOYDEN, Advertising Manager

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Index to Advertisements

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VOL. XLII. JULY 15, 1914 NO. 14

EDITORIALS

There has been more or less controversy as to whether any strain of honey-bees can gather nectar from red clover. We have carefully studied the conditions under which red clover will furnish nectar to *Apis mellifica;* and we believe the facts we have presented in our footnote to Mr. Fox's remarks on page 559 will explain satisfactorily the conflict of opinion and testimony.

Our Cover Picture

The view on the cover for this issue shows our nucleus yard at Fort Gadsden, Florida, a few miles up the river from Randlett's Landing, as mentioned on page 413, June 1. These nuclei, as fast as they were formed, were moved up to this place, for it was the nearest piece of high ground available along the river. In all, we brought back nearly 500 nuclei.

Those Two Field-days at Medina

The field-day meet under the auspices of the Ohio State Beekeepers' Association was pronounced by every one to be an unqualified success. While the attendance was not as large as expected, owing to the poor season, it was considerably more than local. There were not only prominent beekeepers from all over the State, but some from other States. Visitors began coming in on Wednesday night, Thursday, and Friday. On the evening of the 9th a general program of beekeepers' songs and addresses was given in the big warehouse, with about 600 present, including employees and some citizens of Medina. There were addresses from Mr. Fred Leininger, Mr. E. R. King, State Inspector, and shorter speeches from President W. A. Matheny, of the State University, Athens, Ohio. A. I. Root gave a talk of nearly two hours. So much was said about it that he was induced to continue his unfinished story on the afternoon of the 10th at the basswood apiary.

Representatives of the press were present, including Mr. J. H. Donahey, the celebrated cartoonist of the Cleveland *Plain Dealer*—an artist whose work is clean and first-class in every respect. With him were W. C. Howells, one of the city editors, and other members of the staff of the *Plain Dealer.*

A. I. Root's speech was taken down in shorthand, and we hope to reproduce it in the columns of Gleanings. It was the story of A. I. Root's ups and downs in bee culture, with some wholesome advice to beekeepers and others on how to meet obstacles in life and overcome them.

On the first and second days beekeepers from out of town were taken in automobiles to three of our outyards. There were eleven in all. Various stunts in queen-rearing, putting up bees by the pound and nucleus, extracting with power machinery and hand machines were pulled off on both days. Many beekeepers came to us voluntarily and expressed the feeling that these two days will long be remembered among the big events of their lives; and they sincerely hoped that some association or that the A. I. Root Co. would arrange for another field day in which beekeepers from all over the United States would be invited.

Another Field-day at Medina, of the Wm. Edwards Co.'s Traveling Salesmen

Immediately after the two field days, July 9 and 10, under the auspices of the Ohio State Beekeepers' Association, another field day, July 11, immediately following, was planned by The A. I. Root Co., to take care of 65 traveling salesmen of the Wm. Edwards Co., wholesale grocers, of Cleveland. These people, among other grocers' products, sell honey; and in order that they might be better able to sell it, arrangements were made to give their salesmen demonstrations in our beeyard, including general extracting. They came to Medina, 32 miles, in automobiles, 65 strong. Demonstrations were pulled off according to schedule, and

photographed by a moving-picture man who arrived just a little too late for the demonstrations of the day before. After the field work, these 65 salesmen were given a "honey-spred" consisting of hot biscuits, honey, and milk. After a hot dusty ride this menu seemed to go to the right spot—at least so declared the men. With many thanks for the courtesies extended them, they left here a little after 5 o'clock in their machines, better equipped than ever for selling honey.

POPULARIZING HONEY.

Incidentally it might be mentioned here that The A. I. Root Co. is seeking to popularize honey through the daily press, monthly magazines, the moving-picture theaters, and through personal demonstrations to the crowds that are coming here almost every day of the working season, and we believe that our efforts are producing results; for never in all the history of bee culture was honey consumed so largely on the table as it is to-day. Such concerns as the Wm. Edwards Co., wholesale grocers, with their little army of salesmen, will spread the gospel of honey as a food far and wide.

Honey-crop Conditions at the Present Time; a Short Crop of Clover

It is evident now that the clover crop will be short this season. While the yield has been good in some favored localities, has been from fair to good in northern Michigan, Wisconsin, and Minnesota, the *aggregate* yield will be very much below that of last year. When there is a shortage in clover it always means a stiffening of the market.

When the prospects were so promising a month ago, the general honey market was in a state of decline. What few offerings were made were on a very conservative basis. In fact, Florida beekeepers wrote us, asking what was the matter of the market that they could not sell their crops. Buyers, expecting an enormous yield of clover again, either would make no offers for honey or at figures so low that the producers did not care to sell. But from now on, there should be a stiffening of prices, notwithstanding there is a prospect of a good yield of alfalfa in the West, both comb and extracted, and from a light to fair yield from mountain sage in California.

Those who have secured a crop of clover comb honey should not make the mistake of holding the price too high. In fact, their figures should be but little higher than those of last year. Buyers will not pay very high prices for clover comb honey if there is a good supply of alfalfa comb honey at lower prices. So western alfalfa will probably prevent a very sharp advance on Eastern clover. The facts are, consumers are being educated to alfalfa. The day has gone by when white clover can command a price exclusively its own.

There has been a comparatively large yield so far from basswood—in fact, it is a basswood year. At the present time we are having a splendid flow from our basswood apiary. If every yard in Ohio were getting as good a yield, Eastern prices, so far as Ohio is concerned, would tumble without doubt. We are getting as fine a lot of pure basswood as we ever had. We have had yields other years from this source that were larger, but they were clover and basswood mixed. Reports from other sections of the country show that, where there is any basswood left, the yield will be good; but the areas where it grows are so limited that it does not greatly if at all affect the general clover market.

Much of the clover extracted this year will contain a large proportion of basswood, but not enough to mar it for clover, because it will have a flavor that many prize. A. I. Root is very fond of the basswood flavor, especially when a little of it is intermingled with clover, and A. I. Root is no exception among connoisseurs of honey in the clover belt.

Buckwheat may be a little light this year, owing to the general drouth conditions that prevail at the present time. If it is broken by rains, there may yet be a fair yield from buckwheat in New York.

We have received no late advice from Canada respecting the sections north of the lakes; but the Canadians will probably receive more clover honey than their neighbors on this side of the lakes, for the Northern sections seem to have more clover. From present indications the honey market, however, in Canada should be firm.

Another Indiana Bulletin on Bees Free for the Asking

There has been issued from the office of the State Entomologist, C. H. Baldwin, Indianapolis, Ind., another bulletin entitled "Circular of Information for Beekeepers, No. 2," by B. F. Kindig, one of the assistant State inspectors. This is one of the very best bulletins ever put out by any State or by any writer. It contains 60 pages of good sound orthodox teaching on bees. Mr. Kindig is a practical beekeeper himself, and he knows how to tell his story in such a way that the reader can easily follow. It is well illustrated, many of the illustrations being original.

It is stated that this bulletin is free for the asking. Certainly every Indiana beekeeper should obtain a copy before the edition has been exhausted.

To give the reader an idea of some of the good things that are in this bulletin, we copy from page 32 some short pungent paragraphs under the head of "Miscellaneous Statements" that can be read with profit, and here they are:

SOME MISCELLANEOUS STATEMENTS REGARDING BEES AND BEEKEEPING.

Pure honey does granulate.

Honey-combs are not manufactured.

"Any old thing" does not make a suitable hive in which to keep bees.

Queens are mated but once in their lives, and then out in the open air.

Bees do not bite holes in ripe fruit, but they do suck the juices after the openings have been made.

Bees may have some wisdom, but ignorant people give them credit for more knowledge than they possess.

It does not pay to "jump head over heels" into the bee business unless there is plenty of experience to back it up.

It is not just a proposition of putting on some supers in the spring and taking off a crop of honey in the fall.

Beating the dishpan or ringing the dinner-bell never settled a swarm—they just naturally cluster after leaving the hive.

Bees have no more to do with the scattering of fruit diseases than do the other hundred of insects that visit the flowers.

It is not a sign of ability to make a practice of trying to handle bees without smoker or veil—it's just foolhardiness.

Bees do not know their owner. They are wild animals, in no sense domesticated, even though they do not always resent the intrusion of man.

A small person who "uses his head" is worth more than a ton of "beef" in the beeyard; but a liberal supply of both brain and muscle is the ideal combination.

There is not a king or queen in the hive in the literal sense of the words. There is no individual bee that rules the colony. They seem to work toward the end that the greatest good for all may be accomplished.

Sometimes even bees do not seem to have any common sense.

And, again, on page 34 are some more paragraphs worth reading:

INFLUENCES CONTRIBUTING TO PROFIT AND LOSS IN THE APIARY.

Two factors, carefulness and carelessness, make up the greater part of the profit or loss in beekeeping. In many of the suggestions which follow, one or the other of these factors will be apparent.

Study your business and the demands of your locality.

Success in beekeeping, as in any other business, demands that much attention be given to details.

Equalizing brood or stores in foul-brood localities invites the spread of disease.

Use movable frames, and see that they are movable and not cross-combed.

It pays to know the conditions existing in the colonies from week to week

Bait combs get the bees started early in the sections, and so they store more honey.

Fads last only a short time. It isn't worth while to bother with them. Real merit counts in the long run.

Try to have hives and equipment conform to the standard in size. Their market value is much higher.

An attractive package adds much to the market value of a product.

A reputation for selling only good goods is one of the best assets of a beekeeper.

It does not pay to work for wax production. It requires too much of the time and energy of the bees in producing it.

Contract the entrances to weak colonies. It may save them from extermination by the robbers.

Beekeepers' meetings are sources of much good. Try one and see for yourself.

Home-made equipment in general either costs more or is worth less than factory-made supplies.

Box hives and cross-combed frame hives are not only a nuisance, but do not give satisfactory financial returns.

It pays to go through the colonies carefully, early in the spring. Some may be queenless, others weak or in need of food.

It does not pay to keep more colonies than can be properly cared for. Better sell off some than buy more and not care for them.

Feeding sugar syrup in the fall may mean satisfactory wintering, and a strong colony ready for the honey-flow the next season.

Italian bees have been proved to be the most profitable in a large number of widely scattered localities.

Keep in touch with the bee journals, publications of the Department of Agriculture, and the State Entomologist's office. They are all working for the betterment of beekeepers.

The practice of selling prime swarms is more profitable to the purchaser than to the seller.

Scraps of wax gathered here and there increase the returns in dollars, and may prevent the spread of foul brood.

When shipping to a commission man it may save much worry and some money to find out first whether he is responsible or not.

When buying bees, buy them guaranteed to be free from disease, and see that they are so before removing them from the premises.

It pays to use full sheets of foundation, both in brood and extracting frames and in the sections.

Two or three weak colonies may manage to live; but if they were united to form one strong colony they would usually store a surplus of honey.

Wholesaling of honey is the easy way, but the building-up of a retail home market is the more profitable way.

Even though extracted honey may not appeal to one's esthetic nature, yet the locality may require extracted-honey production in order to get a marketable product.

The man who asks a good price for first-class honey not only sells it but wins the respect of his customers. The man who sells below the market is laughed at after he is gone.

The possession of a good smoker and veil pays high dividends in the reduction of the number of stings and the resulting ease and rapidity with which the bees can be handled.

It's a beekeeper's business to know whether his neighbor's bees have disease or not. If there are any suspicious cases or information is desired, notify the State Inspector of Apiaries, Room 130, State House, Indianapolis.

Foul brood causes more loss than any other enemy of bees. The disease is spread through the honey; and any way that allows the bees of one colony to get the honey of another is favorable for the spread of the disease.

After a beekeeper has reached the greatest number of colonies that he can care for without interfering with other duties, then the law of diminishing returns applies; and if the number of colonies be increased further, the profit per colony will be reduced.

The number of colonies in one location should be determined by the abundance of honey-producing plants. In some locations several hundred colonies might be kept profitably, while in other localities twenty-five colonies are too many. In some locations one hundred colonies may make a living and very little besides, while if the number were reduced to fifty a profitable surplus might be secured.

As Mr. Kindig is an experienced foul-brood inspector, and as such has traveled extensively over his State inspecting hives, judging by what he has seen, he is in position to know whether it pays one to make his own hives. At all events, this is what he has to say:

Speaking broadly in reference to conditions that are met with throughout the State, the home-made

hives are usually a nuisance in some respect, and almost always defeat one of the many objects desired in the use of modern hives. They are rarely accurately made. This results in the various parts not being interchangeable, and so frequently prohibits desirable manipulations in the beeyard. Many men try to have a patent(?) hive of their own invention, and it has not yet been the writer's pleasure to find many that were worth as much as a two-dollar factory-made hive, although many of them with all of their fixings cost as much as six or eight dollars. While it is probable that many improvements will be made in hive construction, and it is not the intention to try to discourage any one with inventive genius, yet before indulging in the luxury of building "a new patent hive" one should conscientiously study the construction of the various factory-made hives now on the market, and consult beekeepers of wide experience concerning the project.

Hives of equal quality cannot be made as cheaply at home, if labor is counted, as they can be purchased.

Home-made hives are usually of poorer quality of material, and are inaccurate in measurements.

Unless made to fit Hoffman frames they are of practically no value on the market. They frequently have some features of their construction which require more labor in manipulation.

Of course Mr. Kindig is authority on the treatment of bee diseases. He covers the subject well.

The bulletin closes with a copy of the horticultural bee-inspection laws of Indiana.

The National Net-weight Law Again as it Affects Comb and Extracted Honey

In our last issue, page 487, we went on to state that the national net-weight law, so far as it relates to comb honey, had been construed to mean by the committee at Washington the weight of the comb honey itself, exclusive of the section or frame surrounding it. We expressed the hope at the time that the effective date for this ruling to take place might be postponed one year hence. We were laboring under the impression that any comb honey on the market, not properly marked, after Sept. 3, 1914, even if packed prior to that date, would be misbranded, and therefore subject to the fines and penalties for violation of the pure-food act. We accordingly asked our Mr. Selser, of Philadelphia, to see Dr. E. F. Phillips, in Charge of Apiculture, Bureau of Chemistry, and arrange for an interview with the committee to see if we could not get an extension of the time. While they failed in this, they obtained an opinion from Solicitor Francis G. Caffey to the effect that a package of food is not misbranded when properly labeled as to weight, if it was put up or prepared *prior* to Sept. 3 of this year, but that the burden of proof rests on the packer to show such prior packing. It appears that, while the law went into effect March 3, 1913, no penalty attaches until 18 months after that—Sept. 3, 1914. Here is a copy of the Solicitor's opinion:

Receipt, by reference, is acknowledged of your letter of April 14, in which you inquire as to how much time will be allowed beyond September 1, 1914, for the disposal of goods packed under labels not showing net weights.

Ever since the passage on March 3, 1913, of the net-weight amendment to the Food and Drugs Act, it has been a violation of law for packages of food products shipped in interstate or foreign commerce not to be marked in compliance with the amendment. Section 2 of the amendment provided, however, that no penalty shall be enforced for any such violation "as to domestic products prepared or foreign products imported prior to eighteen months after its passage." The eighteen months' period will expire on September 3, 1914.

While the question raised in your letter, being purely legal, can not be authoritatively determined by this Department, and must be eventually settled by the courts, the views of the Department are:

First. That the penalties of the Act of fine, imprisonment, or confiscation cannot be enforced for violation of the net-weight amendment in respect to domestic food products prepared or foreign food products imported prior to September 3, 1914.

Second. That if, after September 3, 1914, packages of food products, not marked as required by this amendment, be shipped in interstate or foreign commerce, or otherwise brought within the jurisdiction of the Food and Drugs Act, the burden will be upon the person guilty of the violation to show that the article, if domestic, was prepared, or, if foreign, was imported, prior to September 3, 1914.

Third. Persons guilty of violations who cannot make proof that preparation in the case of domestic, or importation in the case of foreign, food products was prior to September 3, 1914, will be subject to the penalties of the Food and Drugs Act.

FRANCIS G. CAFFEY, Solicitor.

April 29, 1914.

From the last two paragraphs as given above, it will be apparent (and we reiterate here for emphasis) that *the burden of proof will rest on the packer to show that the article of food that appears to be misbranded under the net-weight amendment was prepared before Sept. 3 of this year.* Don't forget this. As it might be difficult to prove that fact, and in any event entail considerable expense, it would be far better for the packers of all food products, including comb honey, to see to it that none of the goods, after Sept. 3, 1914, are left on the market in any State other than the one in which the goods were prepared or packed. It, therefore, behooves every producer of comb honey, dealer, commission merchant, or an association of beekeepers, to relabel or restamp all the comb honey (that is now in their possession, and in the hands of their dealers), showing the net weight of the comb honey itself, exclusive of the frame or section, the carton, or glass, if it is a glassed product.

When one's honey has already been put up and packed in cartons, we presume it would be permissible to mark out the combined net weight of the section and the comb honey in plain figures in ink, and put in its place the net weight of the comb honey less the weight of the section. Such erasure and remarking rather implies an admission that Uncle Sam now compels an honest weight that was not honest before. But any such corrections will not be necessary if the hon-

ey in question is sold in the State in which it is produced or packed; but as no one knows *where* his honey will go, he will do well to err on the safe side, especially if there is a State law covering net weights.

The average section of honey, 1⅞ x 4¼, will run from 13½ to 14 ounces, including the wood, and as the section itself weighs very nearly one ounce it will be necessary to deduct that much, making the net weight show 12½ or 13 ounces. A 4 x 5 section will run the same weight, and so the same deduction will have to be made. The wood of 4¼ plain section will not weigh quite as much as a beeway section of the same size; but it will be necessary to subtract one ounce just the same. In doing this, a plain section 4¼ square will weigh heavier than a 4¼ beeway section.

But many beekeepers have been selling their comb honey by the case or by the count; and it would look as if the net-weight law would put a stop to this; but the selling by count is permissible as we understand it, providing that every unit in the case—that is, every section—is marked not less than so many ounces. Let us take a concrete example:

A No. 1 1⅞ beeway section of honey, 4¼ square, will run from 13½ to 14 ounces, including the wood. If such section is marked not less than 12½ ounces, net weight, it may be sold by numerical count; but care should be taken that no section in the case weigh less than the minimum specified on it. It would then be permissible, as we understand the ruling, to sell a 24-lb. case or a 12-lb. case by numerical count, or so much a section. The net-weight law does not require that a section shall not weigh *more* than a specified amount; but it does stipulate that it shall not weigh *less*.

As soon as beekeepers and dealers become accustomed to the operation of the new law, the intent of which we believe to be eminently fair, there will be no inconvenience nor hardship. We had hoped that the effective date when penalities would be applied might be set a little further along; but as the Bureau of Chemistry has no power to make this change we must, of course, make the best of it. If there is any comb honey that any of us have sold bearing the weight of the section and the comb honey, and which is now out of our possession, it will be up to us to prove that such sections were prepared or packed prior to Sept. 3, 1914, after which the penalties for misbranding can be applied.

Those who sell their honey in cartons can very easily mark the net weight of the honey put in cartons; for it is permissible to put the net weight on the outside of the carton, said net weight being the comb honey itself exclusive of the section, carton, and wrapper; but as it will be impracticable to mark on every carton the exact net weight of each individual section, all the comb honey should be very carefully graded, and the cartons marked not less than so many ounces of comb honey. The No. 2 or underweight sections will have to be put up in cartons with a correspondingly lower net weight. That will mean that there will probably have to be two or three different grades of weights of honey.

Where one does not sell any honey in cartons he will have to use rubber stamps to mark each section, using an indelible, nonfading, non-blurring ink; that is to say, an ink not affected by the weather nor by dampness. The rubber stamp should indicate the weight in plain letters and figures. In the case of cartons there will probably have to be three different wrappers to take care of all the three weights of comb honey.

The Colorado Honey-producers' Association, under the direction of Mr. Frank Rauchfuss as manager, has worked this matter out very nicely, and we copy herewith a circular which they are sending out to their members. Other beekeepers who produce honey in the same class of sections, 1⅞ beeway by 4¼, will do well to follow these specific instructions.

THE FEDERAL NET-WEIGHT LAW.

To the Members of the Colorado Honey Producers' Association

You are hereby informed that the Federal Net-weight Law passed by Congress March 3, 1913, is now enforced, and that the regulations published by the Net-weight Law Committee May 11, 1914, must be observed in the packing of articles of food intended for interstate commerce.

(Copied from food inspection decision No. 154.)

REGULATIONS AS APPLYING TO HONEY.

A. The quantity of the contents in all cases of food, if in package form, must be plainly and conspicuously marked on the outside of the covering or container usually delivered to consumers.

B. The quantity of the contents so marked shall be *the amount of food in the package.*

C. The statement of the quantity of the contents shall be plain and conspicuous, and shall be so placed in such characters as to be readily seen and clearly legible, when the size of the package and the circumstances under which it is ordinarily examined by purchasers or consumers are taken into consideration.

D. If the quantity of the contents be stated by weight or measure, it shall be marked in the terms of the largest unit contained in the package. For example: If the package contains a pound or pounds and a fraction of a pound, the contents shall be expressed in terms of pounds and fraction thereof; or of pounds and ounces, and not merely in ounces.

H. The quantity of the contents may be stated in terms of minimum weight, minimum measure, or minimum count. For example: "Minimum Weight, 16 oz." Minimum Volume, 1 gallon," or "Not less than 4 oz.;" but in such case the statement must approximate the actual quantity and *there shall be no tolerance below the stated minimum.*

Attention is also called to the enclosed copy of a telegram by Dr. C. L. Alsberg, Chief of the Bureau of Chemistry, where it is plainly stated that *weight of actual contents* shall be marked upon sections, or when honey is packed in cartons, then upon the cartons containing the sections.

As it will not be practicable to mark the *actual net weight* on each section of honey, the Board of Directors of The Colorado Honey-producers' Association has adopted the plan suggested in paragraph *H*, of marking the *minimum net weight* on each section or carton, as per following resolution which was unanimously adopted:

Resolved, In order to comply with the Federal Net-weight law, and to identify each member's honey, each section of comb honey sold by the members through The Colorado Honey-producers' Association, on and after July 1st, 1914, must be stamped on top of each section of honey: first, with the initials of the Association; second, with the member's consignment number, prefixed by the word "Apiary," and, third, with the minimum net weight adopted by the Board of Directors for said grade of honey.

For example: If a member having consignment number 14 wishes to mark either a fancy white or a No. 1 section of honey, he will use a stamp like this:

"C. H. P. A., Apiary No. 14.
Net Weight Not Less Than 12½ Oz."

If a choice-grade section is to be marked, he will use the following stamp:

"C. H. P. A., Apiary No. 14.
Net Weight Not Less Than 11 Oz."

If a number-two grade section is to be marked, the following stamp will be used:

"C. H. P. A., Apiary No. 14.
Net Weight Not Less Than 10 Oz."

As the weight of the section itself is one ounce, *the gross weight of a number-one section of honey must under no circumstances be less than 13½ ounces.*

The gross weight of a choice-grade section of honey must not be less than 12 ounces.

The gross weight of a number-two section of honey must not be less than 11 ounces.

(Attention is called to the fact that the *Board of Directors has changed the minimum gross weight of the number-two grade from ten ounces to eleven ounces.*)

MARKING OF SHIPPING CASES.

Both ends of each shipping case shall also be stamped by the producer with the same mark that is stamped on each section contained in the case. This stamp shall be placed immediately above each hand-hole of the case.

EXTRACTED HONEY AND STRAINED HONEY.

If in five-gallon square cans, shall be uniformly packed, so as to contain 60 lbs. net weight of honey, and shall be marked in like manner on top of each can as prescribed for *comb honey*. The cases containing cans of extracted honey must be marked so as to show the number of cans in case and net weight of each can.

As a plain and conspicuous marking of the net weight is required on each section of honey, and as, owing to the nature of the contents, it would not do to exert much pressure in stamping them, the Board of Directors recommends the use of cushion rubber stamps, and the use of non-fading ink pads.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION.

Before we pass from a consideration of the net-weight law as applied to comb honey, there is one important point to be considered, namely: That prices may have to be readjusted. If, under the old scheme of marking, a case of 24 sections brought $3.00 wholesale, and if it still brings $3.00 under the new scheme, the producer will lose the difference between the minimum weight marked on the section and the actual weight. Let us suppose a case:

Here is a case of sections that has sold at $3.00 per case of 24 sections. Before the net-weight law went into effect, the sections, fat and lean, would *average* up so as to make a case or several cases all of a uniform weight. Under the new net-weight law, if sections are sold by numerical count, then the producer must have every section so it will not weigh less than a certain minimum. But it is apparent that whatever there is above the minimum, the producer or dealer is actually giving to his customers. To take care of this loss he can mark the actual net weight on every section, and then sell to his customers by weight, the sum of all the weights of the individual sections. But most producers and associations, so far as we have heard from them, prefer to mark the minimum weight on each section, less one ounce for each section, rather than go to the trouble of weighing each section individually. If we take either horn of the dilemma it will mean that the producer, if he sells at the old price, will receive less than he did before. In the one case he is giving more for the same money, and in the other case he receives pay for the actual weight; but as the net cost of production is increased by the labor of weighing and marking each section he actually receives less.

As the price of comb honey, as we have before said, is regulated by the law of supply and demand, the producer, in order to make as much as he did before, should either charge more per case on the minimum-weight basis per section, or charge more per pound if he sells a case by weight. The next question is, "Can he get more per pound?"

In regard to marking sections with rubber stamps, the committee favors labels rather than stamps; but it is practically impossible to label every individual section, or, rather, it is more accurate to say it would be much more practicable to use an indelible non-fading ink with a rubber stamp. The latter can be used far more rapidly than one could use labels and paste. If one uses gummed labels he will find such labels will come off.

NET WEIGHTS AS APPLYING TO EXTRACTED HONEY.

The secretary of the committee has decided, in the case of extracted honey in tin cans, that it is permissible to mark those cans by volumetric weight, as gallon, half-gallon, quarts, and pints, or mark the actual net weight of the contents. The average buyer would prefer to buy it by weight, for the simple reason that a gallon or five gallons of thin unripened honey may spoil on his hands; and in any case is not as valuable as the same number of gallons of thick well-ripened honey. Dealers and producers alike will probably sell by actual net weight of honey in the can. In the South, honey is sold by the gallon; but in the North it is sold almost entirely by weight.

In the case of bottled honey all bottles should show the actual net weight of honey on the labels exclusive of the weight of the glass. Heretofore it was not necessary to show the weight of contents on the label.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.

A. I. ROOT, instead of using saw or pruning shears to cut off the spur of a fowl, p. 442, why not use the sharp cutting pincers a blacksmith uses to cut off the edge of a horse's hoof?

H. CAMPBELL sprinkles a little fine sand on the second coat of paint on the entrance of hives, while the paint is still wet, and dusts off loose grains before applying the last coat. In a blustering wind, hives so treated lost scarcely a bee, while chilled bees with their loads of pollen lay thick about untreated hives. The sand allows the bees to hold their own against the wind.—*British Bee Journal*, p. 156.

L. W. CROVATT, p. 464, no doubt you have it right, that "locality" makes a difference as to painting hives as well as to other things. If my hives should go as bad as you paint it in a single season, I'd paint. Since they are in fair condition after 25 unpainted years, do you think you ought to insist on my painting, provided I agree to paint after I move to Georgia? [We hesitate about butting into this controversy; but we beg to suggest that Dr. Miller's unpainted hives, if exposed to the hot sun in hot weather, might have a tendency to melt down the combs; but he uses a two-inch-deep entrance the full width of the hive. Well, we see no alternative but to let our old friend have his hives unpainted.—ED.]

ARTHUR C. MILLER has gotten up a hive-tool that I've been using for some time. It has a chisel at one end, like the Root tool, but the other end is entirely different. At 5½ inches from the chisel end it is 1 inch wide, and then tapers down quite suddenly to ⅜ inch in width, being 5-16 at the end, the total length being 8 inches. At 1½ inches from this small end it is bent back a little more than to make a right angle. When thus bent the finished tool is 6½ inches long. The hook thus made keeps it from sinking down when put in the hip pocket; but I find it rather in the way there, and if you're not careful it hurts your hand. Miss Wilson doesn't like it so well as Dr. Cheney's modification of the Root tool, but I have a growing liking for Arthur C.'s tool. That hook is very handy to pry frames toward one without having to reach so far; it is fine to lift out dummy or first frames and is the finest thing I ever tried for cleaning out tin rabbets. I should want to have one if only to use for that one purpose alone.

G. M. DOOLITTLE says, p. 368, "I have never had any success in stopping swarming through the cutting of queen-cells after the queen had laid in them and the 'broody' fever had taken possession of the colony." At one time I was inclined to believe killing cells didn't pay, but I changed my mind after further experience, and perhaps after having bred out some of the swarming disposition; for I think there are bees so much given to swarming that they pay no attention to the killing of cells, and others so little given to swarming that they are easily discouraged from it. At present I believe that killing cells makes a big difference in the amount of honey I obtain. True, it fully prevents swarming in only a minority of cases, but the bigger harvest from that minority pays well for the work of all. Generally, after I've killed cells the first time I find within ten days grubs well advanced again. In that case I know killing cells will no do good, and other measures must be taken. But so long as I find nothing more than eggs or very small grubs, I keep on killing, and thus keep the swarm-demon at bay. Yes, indeed, killing cells is a fine thing here.

R. F. HOLTERMANN, I'd like to hold a convention with you and Byer to discuss those things on page 467. I'm puzzled to know just what you mean when saying the eight-frame hive "has to become a divisible-brood-chamber hive . . . looking up the queen-cells in the upper story." In this locality there is no looking for cells till supers are given, at which time all are reduced to one story. You have an entrance 1⅛ deep, and I suppose the same space under bottom-bars. I'm anxious to know whether bees never build down in that space. I have a 2-inch space with bottom-rack; and if 1⅛ space is left above or below the rack there's building. But the cases may be different. You're so ignorant you can't tell what's inside by the outside. So am I—can't tell a thing from the outside whether a colony will swarm next day or next year. But then with big ventilation there's little hanging out anyhow. But I think I'm just a little smarter than you in one thing; you look through your hives once a week. I get along pretty well with once in ten days. [The eight-frame hive is really a small hive in this day and age; and a small hive must be worked in sections on the divisible-brood-chamber plan. In our locality, forcing a powerful colony into the lower story, and into a super or two with empty supers of foundation, would force swarming a great many times.—ED.]

J. E. Crane

SIFTINGS

Middlebury, Vt.

We are glad of the introduction we are given in the May 1st issue to Charley Repp. I like to see a man with a backbone strong enough to defy the liquor interests of the country. Three cheers for Charley Repp!

* * * *

We were blest with a wonderful yield of dandelion honey during May. Strong colonies filled their hives, and many crowded the queens. This is something I have known but once before in fifty years. As a result, bees have built up very strong, and the outlook is good.

* * * *

I ran across an enthusiastic young beekeeper last week. He started in some two or three years ago, and foul brood cleaned him out, I believe, twice, without giving him a cent of profit; but last year he started anew, buying seven new colonies free from disease, and increased them to 21, and secured 500 lbs. of surplus honey. He has wintered every colony, and I have not seen a healthier or thriftier lot of bees this spring.

* * * *

An interesting page is 329, May 1, by Doolittle, on the prevention of swarming by removing brood. It has seemed to me that those who have recommended this method have rather overdone the matter. In my own experience I have had but poor success in securing combs filled with brood when placed in the center of a hive after the season of swarming arrived. Before this time there is something gained with prolific queens and a strong colony in an eight-frame hive.

* * * *

GOOD AND BAD COMBS.

The question of good combs is not the only spoke in the wheel of successful beekeeping, but it is an important one, and Arthur C. Miller has done well to call our attention anew to this important subject. A bee inspector meets with constant surprises. One of the things that constantly surprise me is that any one should pay out his hard-earned money for a movable-comb frame hive and then allow the bees to build such crooked combs that they become immovable. Or why do they buy and put bees into movable-frame hives and then never try to move or handle such frames? Or, again, as Mr. Miller says, why use combs with such quantities of drone-cells as we often find? Only last week I opened a hive and found two frames of drone brood, most of it with sealed brood, besides more or less in other places in the hive. I estimated there were at least 6000 cells of drone brood, to say nothing of a great horde of drones already hatched. I often find such combs near the center of the brood-nest, so the colony can begin rearing drones very early in the season. Mr. Miller says he keeps his drone combs as far from the brood-nest as he can, so the bees will not use it until late in the season. The same amount of labor and food would, in the hive I have mentioned, have produced 9000 workers; and the difference between 9000 producers and 6000 consumers would amount to considerable. What would we think of a dairyman who could keep a herd of twenty should he keep fifteen cows and five steers? or the poultryman who should allow a large per cent of his flock to be roosters?

* * * *

PROBLEMS IN FOUL-BROOD INSPECTION.

Mr. W. N. Randolph, page 333, May 1, lays down some vigorous rules for cleaning up foul brood. I cannot help wondering if he has had any experience with it. One beekeeper whom I visit had one colony diseased last spring. He burned combs, hives, and all, and then buried the ashes, but I find it again in his yard this year. In one district last year I destroyed every colony I found diseased; but I have found just as much this year. Sometimes we find almost every colony in a township diseased. Shall we destroy all?

An inspector is often up against some knotty problems. The scorching of the inside of a hive with a torch is all right, and I presume the painting would answer; but how about the thousands of bees from a diseased colony? These bees have been walking over diseased combs, drawing out the dead larvæ, tearing open cells containing dead and putrid larvæ—in fact, getting in as close touch with the disease as it is possible for them to, their bodies covered with hairs just right for carrying bacteria, and yet we never think of scorching their bodies or painting them; but if they consume all the honey they carry with them, there is little danger of their taking disease to a new hive, we are told.

How about the colonies in trees, church steeples, or cornices of houses, as I was shown the other day? I believe as the editor says on the same page, in a footnote to Mr. Hershiser's article, "Education along apicultural lines will do more good to eliminate foul brood than anything else."

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.

Do not extract too close. Remember next year may be a bad one, and much honey may be required to tide them over. Leave a full super. It pays in the long run.

* * * *

Mr. B. G. Burdick, ex-president of the State Association, in partnership with Mr. M. J. Meeker, is embarking in the queen business. The new firm will be known as Burdick & Meeker.

* * * *

I tried a source of power for an extractor on the 13th of June, not the gasoline-engine kind, but the kind that wears small trousers and eats three meals a day. It worked finely, and not only kept the extractor going but removed the combs after the honey was out. Mr. Crawford, my helper, my eleven-year-old son Ralph, and I took off and extracted over a ton of honey in seven hours, a large part of which was sealed solid.

* * * *

J. E. Crane quotes Wesley Foster, page 448, saying, "Bees that cluster outside of the hive are wasting time." He says he does not feel sure about that. I believe Mr. Foster is entirely right, and would suggest to Bro. Crane that the bees clustered on the outside of the hive are not evaporating nectar but simply idling their time away, if my idea is correct that all evaporation takes place on the inside of the hive.

* * * *

The later in the season queens are introduced, the better they will be for the following season. This is especially true where the queens come through the mails. If raised and mated in the hives, the difference is not so great. Out of fifty introduced in April and May, 1913, a large per cent were superseded before the same months this year, or died and left the colony with no hopes of requeening, due to the lack of drones.

* * * *

The 1st of July of the present year I begin my record system with hives all freshly numbered. About this time the requeening of my yard will begin, and hereafter a close record of each colony will be kept—a kind of pedigree, if you please, noting conditions from time to time, the amount of honey stored from a certain strain, etc. In this way I hope to increase the standard of my bees as well as the output of honey. One of my objects is to see that no queen enters the third season at the head of a colony, and only a few choice breeders will be kept over under any circumstances. Too little attention is paid to requeening.

* * * *

Speaking of pollen as a stimulant to breeding, Mr. R. E. Fairchilds, of this city, recently told me of a time last summer when his bees were gathering quantities of pollen and a little nectar from the sunflowers, and were breeding rapidly. When the bluecurl came in bloom the bees went to it for honey which it was giving freely, but no pollen. The results, according to Mr. Fairchilds, were that breeding almost ceased when the pollen supply was checked for the honey-flow.

* * * *

I have just finished painting my entire apiary. It has taken 13 gallons of paint, besides considerable time to apply it. The entire cost, including the painter's time, will be about $50. It is a great satisfaction to me to sit up on the hill and look down the rows of snow-white hives, and perhaps more satisfaction to know that my hives will not suffer from the effects of weather for a couple of years. An occasional good coat of paint will keep them in good condition for years to come, and save additional expense, in that they will not have to be replaced. Another satisfaction to me is to know that my bees are all going in and out the entrance of the hive, and not here and there through corners and cracks of a lot of weather-beaten, warped, and twisted boards.

* * * *

Intensive or extensive beekeeping, which is better? Extensive is not as profitable in proportion as intensive. This year I have given intensive a thorough trial; and while I have been at much expense to keep a man right on the job since the 28th of March in caring for my 140-colony apiary, I feel that I have been well paid for the expense, and my output per colony for the season will be above the average in the San Bernardino Valley. I have visited my apiary and directed the work at least once a week to keep things moving in the proper way. One of the reasons for my good crop was the introduction of good queens last summer and autumn, nearly all of which made me big profits by gathering large quantities of honey. My ambition is to become an extensive beekeeper on a little more intensive lines that is usually followed nowdays.

BEEKEEPING IN THE SOUTHWEST

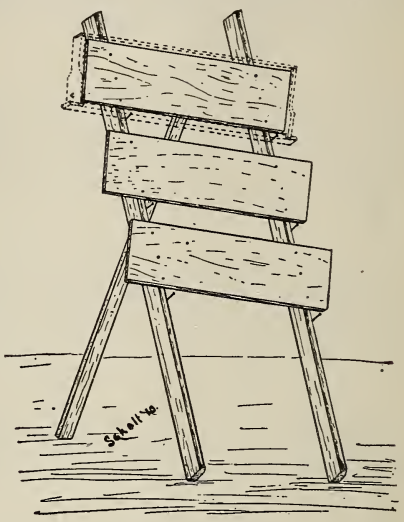
Louis H. Scholl, New Braunfels, Texas.

FASTENING FOUNDATION IN SHALLOW FRAMES

The writer is amazed at the many and very awkward ways in which different beekeepers fasten foundation into the frames they use. A very common method is that of heating a knife-blade, and, after laying a sheet of foundation in the inverted frame so that its edge extends about 3/8 of an inch beyond the center of the top-bar, running this blade over the edge of the foundation until it adheres firmly to the wood. When the frame is turned over into position again the foundation hangs in the proper place in the frame. There are also several foundation-presses that fasten the foundation in a like manner. But one of the greatest objections to such methods is the loss of the 3/8 inch, or often more, of foundation entailed in such fastening. While this may seem to be only a very small item, this loss amounts to a good deal when the number of frames to be filled with foundation runs up into the thousands. And another serious objection to such manner of fastening is that the foundation does not always remain in position, but often falls down. This depends a good deal upon the temperature when it is pressed to the top-bar, and the length of time the supers may have to stand before being placed upon the hives. It is also impossible to depend on such fastening of foundation when the supers so filled have to be hauled to outyards and over rough roads.

My experience with various methods has taught me that the melted-wax plan is the best and the cheapest. Of course, I would not use the slow methods employed by some beekeepers. Holding a board into a frame in order to get the foundation spaced properly, while the frame rests on the knee, and then pouring melted wax along the foundation and top-bar, is a cumbersome and tedious way indeed; yet I have seen this done by many beekeepers. Instead of this it is very easy to construct a rack to hold the frames provided with boards of the thickness to space the foundation exactly in the center of the top-bar. These boards slant downward toward one end to allow the wax to run along the foundation, which fastens it securely and easily. Nails driven into the uprights just below the spacing-boards act as frame supports, as shown in the accompanying illustration.

Any cheap wax scraps are used, such as are even too inferior for the market; hence there is a considerable saving in this as compared with the high price of the foundation that is wasted with the above-mentioned methods. This saving is still greater

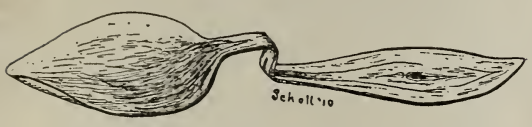


Scholl's frame-rack.

since the same wax can be used again and again every time new foundation is to be put in. This is especially important with us, since we must fill our frames with foundation many times during the season, or each time when we cut out the bulk comb honey and get the supers ready again. After the honey is cut out, the frames are scraped clean of the wax that remains, and this is then used to fasten the foundation.

Scholl's fire-pot.

Any kind of stew-pan may be used for melting the wax on either a gasoline or oil stove, a charcoal-furnace, or a cheap fire-pot made out of a five-gallon honey-can as shown herewith. The spoons used are very cheap tin ones, costing about ten cents a



dozen. We bend the handles as shown, so that they may be hung over the edge of the stew-pot and not fall into the melted wax.

This method can be employed for all kinds of frames, as we use it for deep frames as well as the shallow ones. No grooves are necessary under the top-bar to receive the foundation sheet. On the contrary, they are in the way, as it takes so much longer to insert the edge of the foundation into these, and, besides, they weaken the top-bars materially. And such grooves do us no good when we fill our frames again and again, as it is out of the question to clean the grooves of the wax with which they are filled. The same holds with the groove-and-wedge plan of fastening the foundation. After the first

Scholl's method of fastening foundation for bulk comb honey.

time we never use the wedges again, but simply leave them in, stuck down with wax, and fasten the foundation right over them with melted beeswax. Thus they are a needless expense to us. What we want is just a plain top-bar without any grooves or wedges.

* * *

CACTI AS HONEY-PLANTS.

In reply to your inquiry from South Africa regarding the above matter I wish to say that this subject was discussed by me in detail on page 542, April 15, 1907; and since I have had several inquiries on the subject during the last year or so it may be well to reproduce some of my remarks.

The "prickly pear," the common name for our large-leafed cacti (*Opuntia Englemanni* Palm), is sometimes of much importance to the beekeeper, especially during a season of partial drouth. Several years ago a late "cold snap" destroyed various kinds of bloom in the latter part of March, and retarded the blooming plants for April so much that there was nothing for the bees from which to replenish their stores, which were soon consumed since heavy brood-rearing had been going on during the extended favorable weather previous to the frost. It also happened that the season so far had been a dry one, and there had not been an overabundance of bloom. This, together with the late frost, made all a very discouraging situation, and I was "figuring" on how many barrels of sugar I should have to feed, when, lo and behold! a light rain saved me. The "prickly pear" cacti came into bloom and yielded such an abundance of nectar that not only the brood-chambers were filled but some was stored in the shallow extracting-supers in a little more than a week's time. The bees built up with astonishing rapidity to rousing colonies in a short time, and were in the best possible condition for the main mesquite flow, which commenced early in May, since it was also delayed for about a month on account of the frost, otherwise blooming in April. These cacti are very common throughout southern and western Texas. In southwest Texas, where the photo on page 558 was taken, the ranches were covered over large areas with a thick growth of prickly pear, so that neither man nor stock could pass through except along the cleared roads or a few open paths. Often, as far as we could see, there was nothing but prickly pear and mesquite trees, the cacti sometimes towering from eight to ten feet high. The thick, green, pear-shaped leaf-like stems or joints, from which the plant gets its name, are generally mistaken for leaves; they are very thick and succulent, and bear bunches of small stout bristles and longer barbed spines; hence it will be seen how such a plant can "keep on growing," even during dry seasons, from the "water" stored up in these joints. Consequently the cactus plants had not suffered during the dry spring mentioned, as did other plants; and as the roots are very shallow, or near the surface of the soil, and widespread, the light rain, coming at just the right time, helped these wonderfully, while it had little effect on other vegetation. Both an abundance of honey and pollen were obtained, the honey being light amber in color, of heavy body, but "string"—so much that it fairly draws out into "strings" when very thick. The flavor is very rank; and from reports of other beekeepers, as well as from my own experience, it is too rank for human food, while it is quite valuable for brood-rearing, especially during an off-season as here related.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.

RAISING BUCKWHEAT.

"Please tell something about buckwheat culture. If we beekeepers who have land would all make a specialty of buckwheat for our grain crop it seems to me we could make it profitable."

The first thing to be considered is the preparation of the soil. Those most successful with buckwheat as a grain crop in this locality plow the ground in early spring before the land is generally dry enough to plow for other crops. It is now allowed to lie till the general "spring work" is done, when it is gone over with a harrow and "fined up," which kills most weeds and grass which may have started. Then at sowing time it is harrowed again; or if that is not sufficient, it is cultivated with a two-horse cultivator till the soil is made fine and mellow. This fits the soil to better advantage than can generally be done if the plowing is not done till the time of sowing. The buckwheat is still sown by some "broadcast," but most people use the grain-drill.

There are two or three kinds of American buckwheat—the black, the gray, and the silverhull, all having nearly the same habit of growth. Then there is the Japanese variety, which was introduced into this country some forty years ago, which is pretty well liked as a grain crop; but it is not nearly so good as the others for the beekeeper, as it is inferior in the yield of honey. There seems to be a tendency at the present time to sow mostly the American varieties, much to the liking of the apiarists.

Buckwheat is a plant that is very branching in its habits as compared with other grains, each branch giving many flowerets which "fill" with grain rather better than does the highest top stem. For this reason three pecks of the grain is considered an abundance to sow on an acre.

The time of sowing is from June 25 to July 10, as a rule, here in central New York. But there are a few farmers who will sow as early as June 10; and where thus sown, if the fields yield nectar, it is a curse to the beekeeper rather than a blessing, as it will bloom before basswood gets past, thus "throwing" much of what would otherwise be fancy white honey into No. 2 or 3 grade for the markets. Others do not sow till from the 15th to 20th of July; and these late-sown fields are a great blessing to the beekeeper, as they help colonies short in stores to stock up for winter, and give the colonies a greater proportion of young bees for winter, thus insuring against spring dwindling, other things being equal. The reason for the very early sowing is not apparent, except for some "whim." But it is conceded that the grain "fills" to a much greater extent when cool nights prevail at just the right stage of growth than can be possible where the nights are hot and the weather dry. And the yields of grain show this where the frosts hold off till the grain is fit to cut. But some years we have an early frost, as was the case last year, where hundreds of acres are killed so early that there is nothing left after the frost worth the harvesting. In such case the fields are left untouched, for there is some little value in this frost-killed vegetation as fertilizer.

As to the yield, there is a wide range. If the nights and days are just right, forty bushels to the acre is sometimes secured. At other times only ten bushels to the acre may be the result.* Why do I speak of the days? Because the rule is that, in proportion as the bees store honey from the buckwheat flowers, in about that proportion will be the yield of grain, as the flowers are fertilized by insects. Some years when there is great humidity the nights will be cool, with a fog over the fields till from six to seven in the morning, when the "sun will break out," and a person's clothes soon be wet with perspiration, continuing thus all day, when a cool dampness will again settle down, and the next day be a succession of what was passed through the day before. With such days as these, after such nights, the bees "buckle" in all day long, and the results as to pounds of nectar gathered will be equal to that from any source with which I am familiar—even basswood not exceeding. But more often the nights are warm; the sun rises clear and bright; the bees start out with a rush, gather quite rapidly till ten to eleven, with nothing "more to do" that day. Then with dry hot south winds or rain, or cold north winds, during the whole time the buckwheat is in bloom, no more nectar will be obtained than is needed for brood, and the end comes with little more honey in the hives than at the end of basswood.

The matured crop is generally cut with a binder, as this is the quickest way. Just as soon as it is dry enough to thrash it is drawn and thrashed before it has time to "sweat." The straw is considered worthless except for bedding or as a fertilizer.

* The price of the grain ranges from 85 cts. to $1.30 per 100 lbs., according to the average yield per acre.

GENERAL CORRESPONDENCE

WHY THE SMOKE METHOD OF INTRODUCING IS SUCCESSFUL

Requeening without Dequeening

BY ARTHUR C. MILLER

Continued from last issue

The question is often asked why the bees accept queens introduced by the "smoke plan." Briefly, it is this: Confined and smoked bees are in "distress," as shown by their "roar," and bees in distress know no strangers. Queens will be accepted under many other conditions sometimes, but by "distress" conditions always. Smoking and confining is the easiest and quickest way for the beekeepers to produce such conditions, hence its use.

All do not agree with this assertion, and stick to the theory of odor, despite the evidences against it. I append a few of the different claims, and also some of the conditions where the odor theory does not apply.

It has been asserted that the smoke so fumigates bees and queen that they all smell alike, and that the success of the plan is in the uniform odor. But running in queens with smoke and *not confining* the bees was never widely successful; and, so far as known, smoke smells no stronger now than formerly. Furthermore, as good results can be secured by closing the entrance and getting the bees roaring by much pounding or jarring, and then running in the queen as by use of smoke; but it is neither so quick nor so easy. Again, bees shaken from their combs, and confined in a cage, will become quiet and form a cluster, hanging as still as a swarm, save, perhaps, for a few uneasy bees. A queen may be put into such a cage, and will be accepted by the bee as soon as she reaches them. Neither uniform odor nor turmoil is present.

Again, a queen may be removed from among her bees, and in her place the queen from another colony in the same yard be placed, while the first queen is put in the second one's place. The bees notice no change, and the queens continue their work as before. The bees have failed to notice any different queen odor or the odor of the operator's fingers, which, on the bees' part, is very inconsiderate of the feelings of the champions of the "odor theory."

From a swarm marching into a hive the queen may be removed and another dropped among them. The procession keeps right on with the band playing, and the new queen is perfectly at home with them. And this is true, even if the new queen is anointed with an odor commonly repugnant to the bees.

A queen-cell from one colony may have the queen out of it in a minute after it is put in another colony; but if the second colony is ready for a virgin queen they pay no attention to her and her supposed alien odor.

A comb of brood from one colony may be put in another colony; but there follows no sign of resentment on the part of the bees toward the strange-smelling(?) comb or the rapidly emerging young bees.

In other words, the odor of alien drones, of young workers, of queens of various ages, and under sundry conditions, does not attract the attention nor arouse the antagonism of the bees. By ignoring all theories of odor, and following the plan of "distress," we can successfully introduce ninety-nine per cent of all queens to colonies in almost any condition, and that is good enough for practical dollar-and-cent beekeeping.

Some years ago attempts were made to introduce young queens to colonies having a queen, for the purpose of having the new comer supersede the old queen. Ripe cells were used, and virgin queens; but the successes were few and the failures many, partly from the difficulty of introducing virgins and partly from obscure causes. The matter was soon abandoned, save that now and then some individual makes another attempt. The use of virgin queens was based on a theory of getting rid of the old queen just before swarming time and so avoid that trouble. But just before that period is just when the bees are not ready to accept or tolerate a virgin. Where one was accepted and did supersede the old queen, conditions may have been such that no swarm would have issued that season any way. In other words, the internal conditions of the colonies were unknown.

I, with the rest, was much interested in the attempts; for if it could be made to work it might eliminate swarming; but my efforts were no more successful than those of the other experimenters, and I dropped them. When I finally got the direct intro-

duction to working I recalled the earlier attempts at forced supersedure and began another series of experiments with it. I was not very successful in using virgin queens; for, while they would be accepted, they did not supersede the old queen often enough to pay, so I turned to young laying queens. The results were enough better to encourage me to follow up the matter, and I believe that we shall yet be able to do our requeening without dequeening. It can be done now in a large per cent of cases, but evidently we must know more about the internal conditions of colonies before we can intelligently say just what to do and when to do it.

I believe that, in a general way, the new queen must have the physical advantage of the old one. In other words, she must be young, nimble, and light in eggs, while the old one must be heavy with eggs, and hence unable to defend herself successfully from the attacks of the newcomer. There are many things which I have taken note of, such as relative ages and conditions of the two queens, time of year, nectar flow, weather, and brood distribution, kind of combs, where queen is run in, etc. The last two items should be explained. It is not at all unusual for a queen to confine her operations to one part of the hive when that part contains old combs and the rest new, or where the brood-nest has a new comb put in the middle. If the new queen is run into such a hive, and on the side opposite to where the old queen is, or is run in at the middle and passes to the broodless side, she may set up business there and become even heavier than the old queen before they meet, or they may not meet at all until the winter cluster forms. I can imagine a colony so fixed forming two winter clusters, for it is virtually two colonies, but have never had it occur. I had a case where the reigning queen (one year old) confined her activities to half of the brood-chamber after an unattractive comb had been put in the middle. The bees built one cell in the other half, and, before it hatched, laying workers set up business; and when I discovered it, the original queen was busy in her side, the young queen was laying beautifully in her part, and the laying workers were enjoying their new activities undisturbed. This was with Cyprian stock, and is cited to show the extreme conditions which sometimes arise. Plurality of queens in Italian stocks is really quite common—seemingly more so since the introduction of the light bees of Cyprus and Syria and the rise of the "Golden" Italian. Whether it is due to the mixture of such blood or to closer observation, or to both, I do not know. However, such conditions should be borne in mind when experimenting in requeening without dequeening.

Such a system will be of too much value, if perfected, to be delayed while one individual works it out; so I have brought it to public notice that many may study it and sooner find its possibilities and limitations.

Providence, R. I.

APICULTURAL NOTES FROM GERMANY

BY J. A. HEBERLE

I wish all a good honey season for 1914—especially the friends in California, whom Fortuna overlooked. I know how a beekeeper feels who has many colonies to care for, and for his pains has to supply the winter stores. The honey crop in Germany in 1913 was one of the poorest for many years. The weather was unusually cool and wet. Berlin had the coolest June in 60 years. In Switzerland it was the coldest summer recorded.

PEREGRINATING MEETING OF BEEKEEPERS.

The beekeepers of Germany and Austria-Hungary meet once a year. One year they meet in Germany, the next in Austria or Hungary upon invitation from some beekeepers' union. Usually there are several invitations. The association decides which to accept for the next gathering. These meetings have the euphonious name of "Wanderversammlung Deutscher, Oestreichischer, und Ungarischer Bienenwirte." They are thus called because they change their place of meeting every time.

The inviting organization arranges an exposition of the products of the bee. It provides for social entertainment where new acquaintances are found and existing ones cultivated. The last day is usually devoted to an excursion to some interesting place under proper guidance so as to make it very pleasant.

The management, with a president at the head, provides for a series of lectures by eminent men well versed in the theory and practice of beekeeping. A small charge is made for admittance to the fair. This generally defrays the expense of the local organization. Donations for prizes are received, some quite valuable, so that the

exposition is also a place for fair competition.

In 1911, at Constance, the invitation to meet at Berlin in 1913 was accepted. The Prussian Government gave 3000 marks, and the general Government 1000 marks toward defraying the expenses of the fair. Notwithstanding this, there was a deficit of from 7000 to 10,000 marks. The bee-journals make all kinds of comments that are of local interest. One editor says: "I told you so at Constance." He had advised us not to accept as a place of meeting a city with millions of inhabitants. In these large cities there are so many kinds of entertainments that they will care but little for a beekeepers' fair. At present it is not known to what extent the fair was patronized. If the deficit is due mainly to the small number of admissions, then the beekeepers will hesitate about inviting and accepting as a place of meeting these larger cities.

The fair lasted from July 24 to 30, and received the praise of all who visited it. This was the 58th meeting of this kind. I think it speaks well for this kind of gathering of beekeeping provinces to have endured for 58 years.

ISLE-OF-WIGHT DISEASE.

Some time ago Mr. Joseph Tinsley, of England, had an article in GLEANINGS about this malady. The commissioners appointed to investigate the plague published a report in the *Journal of the Board of Agriculture*. Dr. Graham Smith and others found that the parasite *Nosema apis* caused this dreadful disease that ruined so many English apiaries. This parasite belongs to the animal kingdom, while most of the bacteria that are known to cause diseases in man and animal, also those causing foul brood, stone brood, etc., belong to the vegetable kingdom.

Nosema apis is a near relative to *Nosema bombycis*, the parasite that caused the pest of the silkworm, *Pebrine*, that ruined the silk industry of southern France 60 years ago. The damage was estimated at a hundred million dollars.

Prof. Dr. Zander discovered the parasite in 1907, and with Prof. Doflein, of Munich, called it *Nosema apis* to show the relationship to *Nosema bombycis*. Prof. Zander has studied and investigated this parasite closely, and states that if a bee is once infested it will die. It seems very difficult to prove the presence of *Nosema apis*. A great danger is the fact that the contagion may be contracted outside the hive. The watering-place is considered especially dangerous. The possibility of outside contamination cannot be readily located and eliminated. Some three years ago several investigators found that *Nosema apis* is present in many apiaries. Only one reported great loss and considered this parasite very dangerous. This was Prof. Zander. The malady caused by *Nosema apis* in Germany is known as "contagious dysentery." If *Nosema apis* is the sole cause of the Isle-of-Wight disease, it will be well to keep an eye on it. It may be that bees in very good health may, to a great extent, be immune. There will be more light on this before long.

THE ENGLISH SPARROW.

Mr. A. J. Wright, page 638, 1913, considers this a very dangerous enemy of the bees. I wonder if that is the same bird as our common sparrow. With one exception I never heard complaints from beekeepers. The bees are kept so near houses that if the sparrows indulged in a bee diet it would surely have been noticed. The bird is found here in great numbers. I know them as impudent and greedy feeders, molesting useful birds, and consider them a nuisance, but vegetarians. The exception above mentioned was ten years ago. The reporter of the *Wiener Bienenvater* observed at the school apiary a sparrow that took from the entrance of the hives dead and live drones. The drones were just driven off, and the reporter concluded the sparrow ate only drones. Soon afterward the man in charge of the apiary shot a sparrow that had a worker in its bill and many parts of workers in its stomach. Have you or any of your friends ever heard of sparrows molesting bees?

THE FINEST HONEY IN THE WORLD.

This, according to the *Rheinische Bienenzeitung*, is from the nectar of wild roses near Kallianu, Greece. It added that wealthy Turks buy all this honey at a dollar a pound. A few tons at that price would help a needy beekeeper toward affluence.

FOURTEEN THOUSAND COLONIES STARVED.

It is reported that on the heath-field between Holland and Germany 14,000 colonies died of starvation. Beekeepers send their bees by trainloads to gather nectar from the heather (*Erica vulgaris*). On account of the unusually cold and rainy weather the bees could not gather any nectar, and the owners did not realize in time the precarious condition of the bees.

IN UNION THERE IS STRENGTH.

Beekeepers in general are aware of the truth of this saying, and the leaders of the larger organizations have tried to unite all into one powerful union so as to bring enough power (numerical strength) to bear on the legislators and the general Govern-

Auguste Malachowski giving his daughters a lesson on bees.

ment to modify the laws that are now in force to suit their wants better. They want a foul-brood law, and especially a law to protect the beekeepers from artificial honey and the unfair competition of inferior foreign honey from Cuba and South America. The union, according to previous arrangements, was to be effected this year in Berlin at the Great Fair. This would have been the event of the year; but, alas! the leaders agreed to disagree. Every one connected with the endeavor to unify blames the other fellow. This is sad; but it is hoped that this consummation, devoutly to be wished, has only been postponed.

Germany, Nov. 22.

CAUSING SWARMING BEES TO CLUSTER IN A BOX ON A POLE

BY AUGUSTE DE MALACHOWSKI

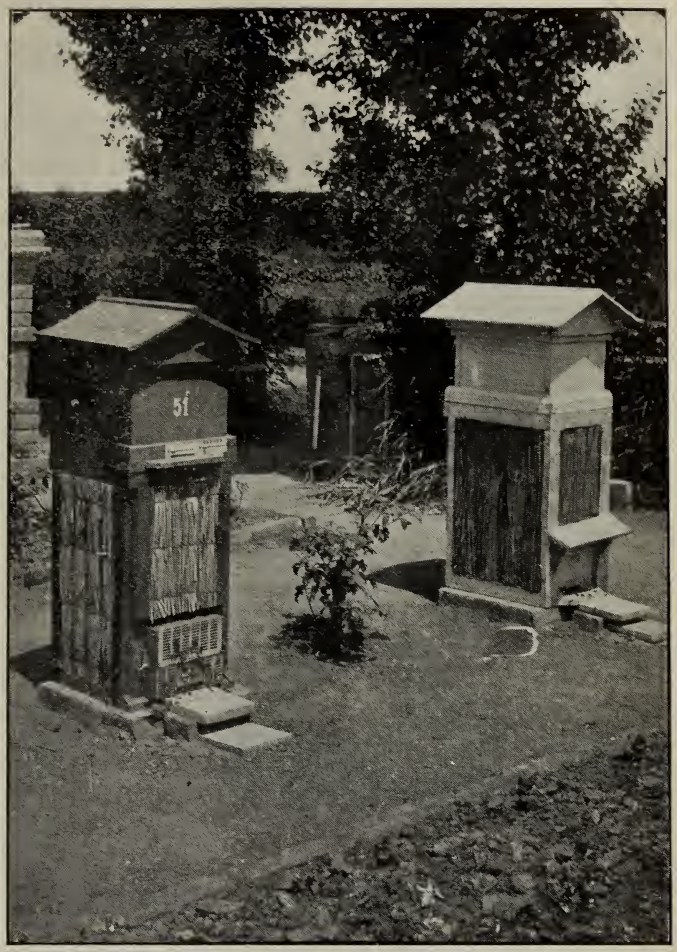
Up to the present time I have practiced artificial swarming; but this year I let the bees swarm naturally. I inclose several photos to illustrate my plans. To trap a swarm is the easiest of all things; and the swarm has no time to cry for quarter, for it finds itself already housed. I proceed in the following manner.

I have a pole about 10 feet long, from which is suspended a sort of triangular box with one old frame inside. When the swarm issues I rub this box with a plant—a mint (*Mentha aquatica*). I hold this contrivance in the midst of the flying bees, and the swarm stops immediately. This plan is very simple and practical. I carry away my box, open one of my hives, give it a slight blow, and, presto! all my bees are hived. To retain them I always exercise care to give them a frame of brood. I advise all beekeepers who practice natural swarming to follow these directions, and then they will not have to attend the severe school of experience by caging a swarm perched high in a tree.

In all this season I have trapped thirty swarms; and I trapped them all, without exception, with the aid of *Mentha aquatica*, and generally even by hand. Spectators have looked with wonder to see the bees mass themselves around me, humming, and alighting on my hands, my person, and even crawling into my vest pocket. As the people of my country are superstitious they looked on me as a sorcerer. I hope that, with the

plan I propose, the problem of catching swarms will be solved, and every beekeeper can have that pleasure. This plan is to be especially recommended in localities where there are large trees.

Here is one more innovation just introduced at my place for hiving swarms; I made a box of sufficient size wherein I placed my swarm-catcher supplied with bees. I closed the lid, crammed the end of a stocking into the opening on top of my Elita hive; then I lifted it and gave it a light rap, when, behold, my bees were at the bottom of the box; and seeing an opening in front of them they hastened to enter the hive. As the front is furnished with glass above, I could see the entire procession; and in case it did not have room immediately, as my box is supplied with screened holes near the bottom, I gave a few puffs of smoke, and, lo! my bees made a start. By the aid of this plan, not a bee flew away, and all passed off as quietly as could be desired.



Two "Elita" hives, the first having seven frames, and the second nine.

A few words in regard to my frames. My manner of proceeding is very convenient, for it permits of changing the frames at will, putting them either above, below, or in the middle. The photograph shows two of my frames fitted with comb-stays and also another one containing comb and bees.

Katarjino, Gov. of Cherson, Russia.

CONTROLLING SWARMING AND MAKING INCREASE

BY "THE OUTLAW."

With the new season I found myself imbued with the usual hopes and aspirations of the amateur apiarist. The predominating idea was that of making increase. I wanted to see my one colony grow into several. Bee literature in the past contains its quota on the subject of making increase; but in spite of all that has been written on the subject I will wager a month's salary that the major part of the increase for this season will be made by natural swarming. From my observation I have come to the conclusion that, while the novice, the first few seasons, boasts that natural swarming is a thing of the past, in *his* apiary at least, he is apt to forget the fine-spun theory of the non-swarming apiary, as the seasons speed by.

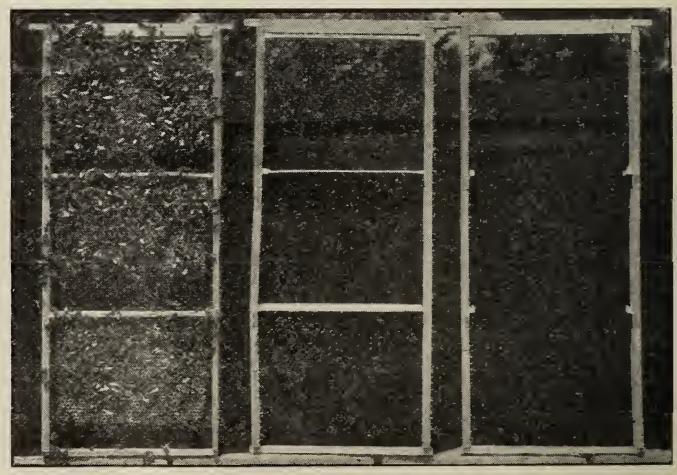
Here it may not be out of place to recall what is probably one of the best records in

Malachowski's swarm-catcher on the end of a pole.

the matter of making increase. For definite data I will refer the reader to Rambler's writings as published in GLEANINGS for 1902. There Rambler's slate will show that on October 1st the 50 nuclei he had purchased the April before had reached the grand total of 300 colonies. At the time, I asked him what manner or method he followed in making his increase and he replied, "Oh! I just let them swarm and then catch the swarms." A verification of this statement will be seen in the published pictures of his Taco Taco apiary, for in all his photos his swarm-catching device, consisting of a bamboo pole with an oil-can hung on the end, occupied a very prominent position. However, I am not going to advise letting the bees swarm naturally, as there is a lot of energy and time of the bees that go to waste by reason of the natural-swarming process.

The theory of management which, for want of a better name, I will call the "outlaw method," is one that in years past I have practiced in almost all kinds of climates and localities under all kinds of conditions; and where the apiarist desires but a moderate increase, and all possible results in the production of honey, I consider it the best. The method is based on the theory that, while it is natural for bees to cast a swarm, the colony must first reach a certain condition before getting the swarming idea, and that, if the colony is kept in a *proper* condition up to and until the heavy honey-flow starts, the idea of swarming never matures. A colony of bees under normal circumstances will not start the construction of queen-cells until the brood-nest is in this certain condition. The method here advocated is to go over the apiary regularly once a week and take out from those colonies which are approaching the danger-point a frame or two of sealed brood, replacing with empty combs or full sheets of foundation. This must be done just enough to hold down the idea of swarming, and it can be done so that, when the principal honey-flow comes on, the colony is in proper shape to handle it. So much for the prevention of swarming.

In making the increase, place six or eight of the frames of sealed brood and the adhering bees in a hive, always taking care to place a frame of honey outside of the last frame of brood if the hive is not completely filled, then give to the colony thus formed a ripe queen-cell. The entrance of the hive



The Malachowski frames with and without the support.

should always be stuffed with grass, tight enough so that it will take three or four days for the bees to clear it. This prevents the bees from deserting the brood and returning to the parent stand. This new colony will, as soon as the queen gets to laying, be on a par with the old colonies. The bees of that colony will not have any desire to swarm during the season, and should produce as much honey as the average colony in the yard. The reason why the original colonies do not swarm when treated in this way is that, by removing the brood, the strength is somewhat reduced, which no doubt has a bearing; but the principal cause is that there is vacant comb in the center of the brood-nest, which place it is always the desire of the bees to have filled with brood before desiring to swarm. There is also the further reason that, having a great amount of unsealed brood in the hive, the bees are not in condition to desert so much unsealed brood.

If this method is followed out carefully when the honey-flow begins in earnest it is possible to have every colony in the yard, both new and old, of almost equal strength, which is something that all practical apiarists desire. It might also be stated that the weak colonies should also be built up with the aid of the brood that is taken from the strong ones.

Auguste Malachowski hiving a swarm.

In conclusion I will say that the foregoing is but an outline. The locality, time of honey-flows, and the desires of the apiarist, will in each case have a bearing as to just what results are obtained. In the average apiary in the North where the honey-flow commences about the first of July, if the object is to secure the greatest amount of honey possible, after building up the full quota of weak colonies that are found in the average apiary, making an increase of 20 per cent is about the proper amount. The great advantage of this sytem is that in all stages the queens have an opportunity to work at their full capacity, and are not confined or restricted to laying in a comb or two as are queens in small nuclei, and this advantage also applies to what the bees themselves are capable of doing. It is a well-known fact that an average colony of bees capable of gathering its full quota of surplus nectar, if split into two divisions, is capable of making only a living, and the surplus received is nothing.

A NOVICE IN A BEE CAMP

"Beekeeping is clean, clever, humanizing, open-air work."

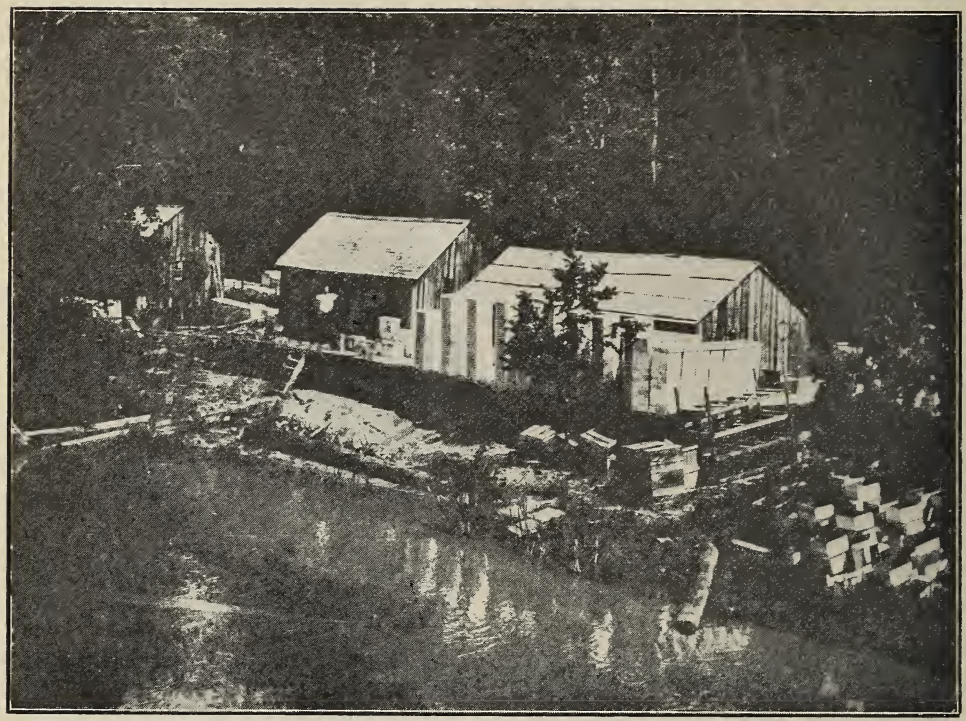
BY D. M. THOMSON

[Mr. Thomson, the writer of the following article, is one of the men whom we sent down to Apalachicola to help Mr. Marchant last winter. As he says, the experience was quite new to him; but, like the true Scotchman that he is, he looked upon the somewhat wild manner of living in a philosophical manner, and was not easily disturbed by the bees nor by the "snake which slept in the loft."—ED.]

Novice, beloved of all beekeepers throughout the country, probably indorses the above motto. So does the writer, hence his novitiate.

On a freezing cold day in February this novice boarded a train in Medina, Ohio, bound for the sunny South. The thermometer was low, but his spirits were high, for he was going to participate in the greatest venture of modern times in the whole wide bee world.

Time was when travel was a great adventure; but in these days of warm and luxurious Pullman cars no one need venture to



The buildings at Randlett's Landing as seen from the deck of the steamer on the river. The building at the extreme left is the sleeping quarters (Saints' Rest); in the center, the kitchen; at the right the extracting-room and work-shop.

hesitate on a journey, however long, in this country.

As the train sped southward, evidences were everywhere that spring had come. Snow was "going, going, gone," though a few icicles were still to be seen on the rocks. Green fields, with skipping lambs, began to appear; and in two days our novice was sailing in a stern wheeler down the River Apalachicola, in northern Florida, amid luxuriant, semi-tropical forests. It was a strange experience to come, thus quickly, out of the frozen North into summer warmth. I retired early, for the steamer was to touch Randlett's Landing in the small hours of the morning. Coming on deck shortly after daylight the purser intimated, "Next stop for you all."

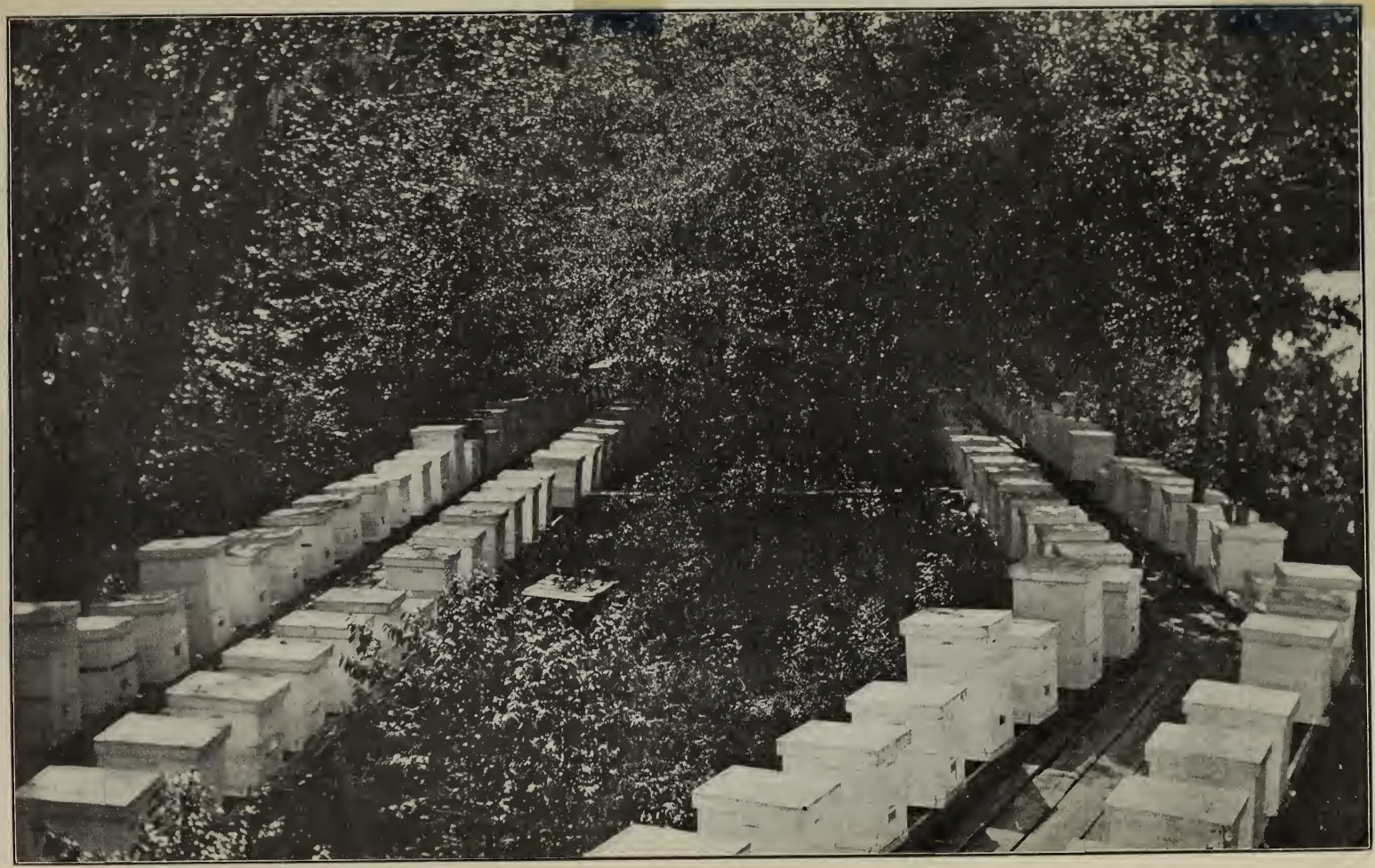
Here on a bend of the river, right in the heart of the illimitable forest, the camp is situated—the kitchen, fittingly named "Liberty Hall," in the center; the workshop below on the right, and the "Saints' Rest," or sleeping-quarters, on the left; and around the camp, "The Home of the Honey-bees," on raised platforms, because of occasional floods, stand the hives, to the number of three hundred and more, each full of busy life from early morn till dewy eve.

Breakfast was set, despite the early hour, and I was made heartily welcome. And what a repast! Gentlemen! "Pickled eels' feet!" intimated my *vis-á-vis,* a veritable son of Anak. That happy note, struck at the very beginning of my novitiate, has been the note of the camp ever since.

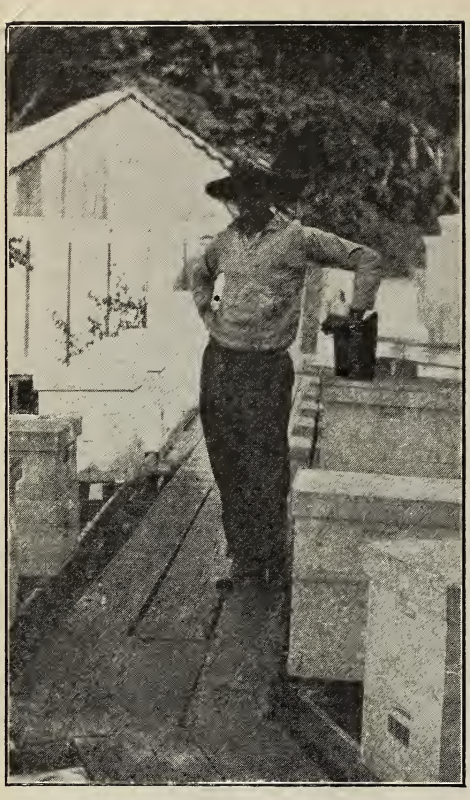
Here and there the figure of our expert, Mr. Marchant, a name famous in beedom, moves about, busily at work among the hives. Sometimes he sings to himself; sometimes a cloud in the sky is reflected in his sunburnt face. It has been a trying season: but now every bee has gone mad with work. A deep vibrating murmur is upon the air. "Just listen to the bees, now! Fly, my bullies!"

The young bees gambol in front of the hives and around the already "swelled head" of Novice. The workers seem to fill the blue sky as they dart hither and thither on their way to gather pollen and honey.

Many sounds are heard from the long workroom. A small gasoline-engine putt-putts and whirrs as a sanding-wheel screams against the nucleus-braces, turning them out as smooth as glass. The twanging of a wire as it is drawn taut in a frame, and the sound of hammering added to the din. In one



A view of the Apalachicola apiary from the roof of the workshop.



Ernest Marchant, the man to whom the success of the Florida venture is due. (He would be better looking if his face showed more clearly.)

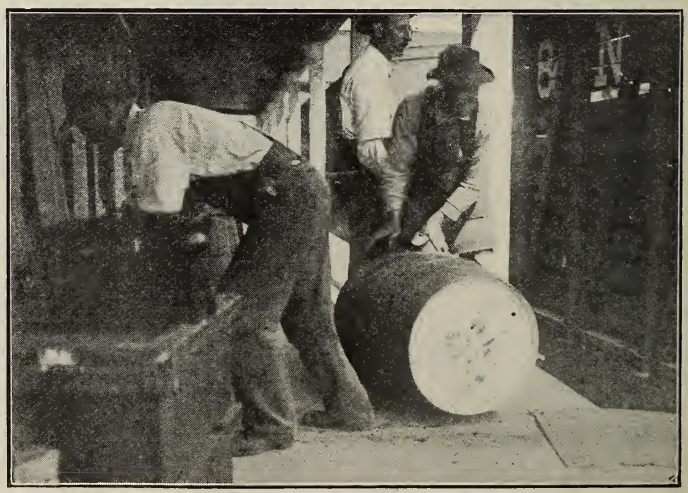
corner a workman is fixing sheet after sheet of foundation in the frames. This is one of the wonders, beekeeping having worked a revolution in methods besides saving the time of the bees required for wax-making. It is one of the clever things spoken of in my text. The shadows are lengthening. "Time to quit, boys!" Work is finished off and benches straightened up, and all hands rush for a refreshing plunge in the river, and then supper, as Pepys would say.

The bees, like time and tide, wait for no man, and supplies must be ready. Work there is and a plenty; for when the bees go north again in May the three hundred colonies will have increased to nearly a thousand, and the one carload will have become three. Will Marchant succeed? Succeed! Why, that's "his middle name."

But all work and no play is not the divinely ordained order of things. And so the desperate, energetic humming of the countless bees, and the noise of the work-room, are constantly shot through with a snatch of song or a sudden peal of laughter as the soft, leisurely drawl of the Southerner falls on the ear in some quaint yarn or merry quip. Once in a while, shortly before dusk, the gun is shouldered, and fresh meat is brought into the camp. As our camp wit puts it, "If there is one thing I like better than a mess of squirrel, it is *more* squirrel." The river is at hand; and, after nightfall, fishing is the sport. A fish chowder, made by our camp cook, "would make a corpse rise up and clap his hands." I am hoping to be at one of these spiritualistic seances before I leave the camp. If you have never tasted southern dishes, grits, hoe-cake, hot biscuits, baked yams, etc., cooked to a nicety by a mere man body, served up with a flourish, and a "The banquet now awaits, gentleman," you have lived in vain.

Thus the days slip by as swiftly as the brown river flowing past the door.

Nature is very beautiful in this wonderful bee country. A fish splashes in the sunlight; a gaily colored butterfly flits on its seemingly aimless way. Overhead a buzzard sails against the blue of the sky; higher up, a hawk. A redbird floods the air with melody. A timber-raft drifts by on its way to the mill below. A bumblebee, the bassoon of the bee band, bustles in at the door and out



Unloading the honey sent with the last car of bees. In all there were nearly twenty-five barrels or over 13,000 pounds.

Interior arrangement of the first car. The aisle divides the car into four quarters, each of which contains staging for three tiers of hives. The two-by-fours were notched and then bolted together.

again. Pervading all is the monotonous hum, which is music to the bee-master's ear.

Sun and shadow, the sound of work, the song of the bees, laughing voices, the scent of the pines, the russet tints of the willows and maples, the fresh greens of the oaks and tupelos, the drab gray of the hanging moss, all combine in a flood of delicious color and scent and sound.

The sun sets in a softly luminous sky, such as, I fancy, is seen only in the South. A flight of cranes string noiselessly across the sky to their nesting. An owl hoots its eerie call. An alligator bellows in the swamp. The fireflies, surely the link-boys of the myriad horde of roystering night-insects, trim their lamps to lighten the beeman's heart with promise of good weather.

"Silently, one by one, in the infinite meadows of heaven,
Blossom the lovely stars, the forget-me-nots of the angels."

We go to bed, saying our childhood's prayer, "This night I lay me down to sleep." But the mosquitoes know better. Those who have never tended bees in a camp do not know how good life is. Beekeeping is indeed a fascinating pursuit.

THE CONSTRUCTION OF THE FRAMEWORK FOR HOLDING HIVES IN A CAR

BY R. A. NUSBAUM

What is your method of staging a car for shipping bees? I understand you have it arranged much like the shelving used in poultry-cars. This allows a narrow passage-way in the middle of the car, does it not? Do you use 2 x 4 stuff entirely? How is it braced and bolted for the best results? How many hives deep on each side of car?

What objections do you have to using a double-deck hog-car? We will ship about 200 colonies from here to Pennsylvania the latter part of July, and should greatly ap-

preciate any suggestions you may have gained through shipping the four cars from the South.

Duncan Falls, Ohio.

[The illustration shown herewith gives a good idea of the construction of the framework. Notice that we notch the uprights and fasten the horizontal pieces to them with carriage-bolts. Depending upon nails alone is rather unsatisfactory, and a little dangerous too, as we find by our own experience.

A double-deck hog-car has been considered, but there are a good many disadvantages. For instance, one cannot stand up on either deck; and to get from the lower deck to the upper one he would have to climb out of the door. There would be no aisle, which would necessitate walking over the tops of the screen when necessary to give the bees water—a proceeding that would be almost impossible when the car is moving rapidly.

One of the Ohio beekeepers, who moved bees down to Florida for the tupelo honey-flow, ordered a double-decked hog-car for bringing his bees back this spring; but after seeing it he decided that it would not answer. The framework that we use costs between $30 and $40, but allows three tiers of hives with aisle between, running the entire length of the car.—Ed.]

BEEKEEPERS I HAVE MET — BERT W. HOPPER

BY WESLEY FOSTER

Rumors kept drifting in from the famous melon town of the Arkansas Valley in Colorado of a beekeeper there who owned and operated something like two thousand colonies of bees. One of the most persistent rumors was to the effect that this particular man often went south and bought bees in Texas along in February, divided each colony into about five nuclei, made up express shipments, and took them to Colorado in time for alfalfa bloom. Naturally I was glad to meet Mr. Bert W. Hopper when the opportunity offered, for he is the man of whom I had heard so many reports.

Mr. Hopper is a hustler in every sense of the word. He buys and sells any thing in the bee line. Many of the neighboring beekeepers sell their honey to him, and he sells each year two or more cars of supplies. He will buy bees whenever the opportunity offers. Even though he does not want them he will soon find some one he can sell them to. He is a man under forty, I should say —large and rather heavy set. He thinks and talks nothing but bees, and never tires of the themes so common to honey-producers. He will not concern himself with doing the routine and detail work in bee culture. This he delegates to others. He will hire a man to drive the team to and from the apiaries, and he jumps on his motorcycle and gets to the yard an hour earlier, and leaves an hour later than the helper who hauls the loads. As yet he doubts the economy of keeping an auto to haul a beekeeper's loads. He has well demonstrated the practicability of operating colonies a long distance from home by use of the motorcycle; and he told me he was planning to motor to Texas this winter with his auto, taking his whole family, and then ship bees back in the spring. Loading a car of bees is not any more nerve-racking to him than loading a car of potatoes or apples would be for any other man. Mr. Hopper has done even more than rumor has it in the way of moving bees from the South. He has shipped a good many carloads. At one time he brought in one thousand nuclei, and I believe he got nearly a car of comb honey the first year from them. The last few years have been hard on bees, and his number of colonies dropped down to about 800, but he increased back to about 1400 before the end of the season. He thinks in apiaries, not in colonies. He will tell you about getting 150, 200, 400 cases of honey from a given yard. Most beemen tell you about getting five cases of honey from a colony. He has attended few bee conventions; but he reads every thing on bees that he can get hold of. His trade in honey is large, and a good share of his crop is sold in local shipments. He is superintendent of the apiarian exhibits at the Colorado State Fair, and exhibits quite largely himself. This is a help in selling his own honey.

The honey-house is of cement, one story only, and with a cement floor. The dimensions are about 40 x 60 feet, I should say, and the ceiling is about 15 feet high in front and nine or ten feet at the back. This room will house thousands of supers, hundreds of hives, a car of bee supplies, a car or two of honey, the automobile and motor cycle, and leave room for the work-bench and honey-extractors.

Mr. Hopper has a very nice house, somewhat like a bungalow in style, with about six rooms. He plans to build a larger house on the corner lot adjoining, which he is saving for the purpose. Upon this lot he

had left growing several cleome stalks, which, by cutting out all but the larger ones, gave these an opportunity to see what they could do; and cleome on a favorable soil will nearly make a tree, covered with the large purple blossoms. There were hundreds of blooms on each stalk, and I do not know that it would be stretching the truth to say thousands. The trunks of the cleome trees, as I should call them, were from 1½ to 2½ inches in diameter.

Mr. Hopper's father, R. A. Hopper; his brother, V. O. W. Hopper, and his father-in-law, Mr. A. S. Parson, all of Rocky Ford, are also in the bee business, and the Hopper family own and operate most of the bees in the county. They now raise comb honey exclusively, although when first coming to Rocky Ford they produced extracted. The change was made largely because of the inroads of foul brood.

Boulder, Colo.

EMOTIONAL METHODS IN INTRODUCING QUEENS

BY J. E. CRANE

To those who have handled bees for many years there can be but little doubt that bees are subject to like passions and emotions as ourselves. That they are subject to grief, affection, fright, anger, there can be little doubt. That these emotions can often be turned to our advantage in our care of them I think we shall all agree. It is also evident that bees can entertain only one emotion at a time. If a bee is angry we can not readily make it fear us. Or if a colony is thoroughly frightened they seem to lose all anger, and we can rob them of part or all their hard-earned stores without a protest from them. If a horse is frightened, its first impulse is to run from the object of its fright as quickly as possible, regardless of the voice of its master—it may be into a tree, or over a precipice to its destruction. If a house is on fire its inmates instinctively rush to the doors, often without thought or reason, to be crushed to death in the crowd of others also trying to get out.

If a hive is filled with smoke the bees become frightened, and their first impulse is to fill themselves with honey and rush to the open. How often do we see most pathetic indications of grief among bees? They have lost their hive, or their brood or their queen, and they will fly for hours if perchance they may find what they have lost. By calling into action the emotion of grief we can introduce a queen with the greatest ease and safety. Take a quart or two of bees with honey enough with them to last twenty-four hours, and place in a swarming-box or small hive properly ventilated, but without queen, brood, or combs. They will soon miss their queen and brood, and in three or four hours their grief will become very pronounced. Now, without fear of loss, you can run in a queen from your yard, or one that has come through the mails, or even a virgin, and the bees' grief is turned to joy and rejoicing. You need not smoke them nor fed them nor pound the box. The next morning you can place them on a comb of brood with some honey, and all will go well.

The emotion of fear or fright has also been used very successfully in the introduction of queens, as has been brought forward by Arthur C. Miller to the attention of the beekeeping world. He says, reduce the entrance to about one inch and then give the colony three good puffs of smoke and close the hive for fifteen or twenty seconds, then open and run in the queen and give another good puff, and close for about ten minutes, when it can be opened just a little.

Now, there is nothing that will frighten bees quicker than smoke. Their first impulse is to fill themselves with honey and rush out of the hive; but get out they can not, for the entrance is closed so their fright is increased to the highest pitch. After ten minutes the hive is to be opened just a little. If we place our ear to the side of the hive we can hear the wild tumult and panic within while fright reigns supreme. The cappings of cells of honey are torn so that the bees may in the greatest haste fill themselves with honey while their love for their brood and tender affection for their queen is apparently obliterated for the time being. It is doubtful if one bee in ten thousand at this time would recognize its own or any other queen. After a time the smoke dies away, and fear gives way to a feeling of good will and gentleness. There is probably not an angry bee in the hive. Every bee is filled with honey, and any and every bee is glad to give it to any queen it may meet on the combs without asking questions; and it is doubtful if there is a bee in the hive that could tell its own from any other fertile queen, in consequence of the odor of smoke that has filled the hive and given every bee within it a characteristic odor. Mr. Miller thinks the odor has nothing to do with it, but rather the fright and tumult caused by the smoke, and he may be right. If so it

Iowa and Wisconsin beekeepers at McGregor, Ia., May 19.

would show that the success of this method that has recently become so popular depends almost entirely upon exciting the emotion of fear or fright in the bees.

There is really not much that is new in this method, at least in the principle, although there may be in the method of manipulation, Mr. Doolittle having described it very fully in his book on queen-rearing, page 112, first edition, some twenty-five years ago. He says, " Having found the queen, she is killed or otherwise taken care of, and the hive closed. I next blow in at the entrance enough smoke to alarm the whole colony, pounding with my fist on the top of the hive until I hear a loud roaring inside, which shows that the bees are filling themselves with honey. I now let the queen that I have in the cage run in at the entrance, smoking her as she goes in, while I still keep pounding on the hive. In doing this, nothing but wood smoke should be used."

Mr. Doolittle uses smoke and pounding to frighten the bees, while Mr. Miller uses smoke alone, although he says he can do it by pounding alone. The principle in both appears to be to frighten the bees. Mr. Doolittle seems to think success depends much on the bees filling themselves with honey, and the odor of the smoke, while Mr. Miller says the odor has nothing to do with it, as he can secure the same results by pounding on the hive to frighten the bees without the use of any smoke.

Middlebury, Vt

IOWA AND WISCONSIN BEEMEN AT McGREGOR

BY FRANK C. PELLETT

The joint meeting of Iowa and Wisconsin beekeepers, which was the first of eight meetings announced for the summer by the Iowa beekeepers' association, was an unqualified success. The meeting was held on May 19 at the Heights overlooking the Mississippi River, one of the most beautiful spots in the middle West. From the top of the bluff where the picnic dinner was spread one could see up and down the river for many miles and get a splendid view of the Wisconsin shore across the stream. Aside from a wreck on the Milwaukee railroad which prevented some from reaching the place, every thing was ideal. The day was fine, and abundant shade made an outdoor meeting very enjoyable. Many came from considerable distances to listen to Hon. N.

E. France, of Wisconsin, who made a very pleasing address. Mr. Holmberg, the State Inspector of Minnesota, was also present and followed Mr. France with a short talk. Brood diseases was the principal topic discussed, as foul brood is seriously threatening the beemen of eastern Iowa at present. However, in the discussions that followed many subjects of interest were touched upon; and, taken all together, the meeting was very pleasant indeed. It was decided to hold a similar meeting in May next year, and to invite the beekeepers of Iowa, Minnesota, Wisconsin, and Illinois.

The photo of the gathering here presented was taken by Mr. John G. Wagner, a beekeeper of Elkader, Iowa, who is also a photographer.

Atlantic, Iowa.

A YEAR'S EXPERIENCE WITH BRANDED QUEENS

BY H. BARTLETT MILLER

Referring to the editorial, page 203, of the April 1st issue for last year, commenting on my article in the same issue on branding queens, I wish to contest some of the statements made. As to "ordinary medium-strength colonies" of the various races, we down in this nethermost land of earth have such a lovely and equable climate that our job is to keep the colonies down to a reasonable store-consuming strength during the off season. English apiarists, one and all, tell me that our winter strength is nearly if not quite equal to the harvest strength in England, and I suppose that comparison would apply to most of the northern States, leaving out the experts whose fame is proof of their ability to keep their colonies strong beyond the normal. It is quite the common thing in this Waikato district for the colonies to have on July 4 (which is 14 days prior to our mid-winter, brood in from five to seven frames, while this brood-rearing fairly started for the season in July is to provide gatherers for a flow that seldom or never comes until November 15, and sometimes does not arrive until well on in January. Now imagine the strength these colonies, if well cared for (as the commercial beekeeper is forced to care for them), reach by the time one goes through the spring examination, say late in September. Sure I can open a hive without rousing the whole neighborhood with the roar; but think of 8 to 11 frames of brood at the spring examination with "nothing doing" in the fields (unless willow is in bloom, which is only for about ten days), and those queens to be found so as to relieve pressure of work when dividing or cell-destruction arrives in October! What is true here is true, I take it, of most of the southern States. As the North judges them, medium colonies are only weaklings in the South, or else I have been misreading all my bee-journals, and I take them all, for these seven years past.

Then, again, when a swarm issues with a superseding virgin, as sometimes they do, even with such extra-clever persons as your humble scribe, it is almost a moral certainty that I shall find the dead queen by the brand, somewhere in front of the hive, and discover what hive they come from without tearing down heavy half-filled supers on other hives. Without the brand I might never catch sight of her. Several times has the branding saved my pulling apart piles of supers to stop the almost inevitable afterswarming.

Then as to the time and skill it takes to do the branding. It is not the branding, it is the catching of the "varmint," that uses up the time; but the satisfaction of knowing that, except during supersedure, they are not likely to decamp with a swarm without your finding them before the last trial, is so great a relief that I clip all mine for that sole purpose, while the branding is advisable if only to be further relieved by the thought that she is there when I want her. Mark you, I want her at every spring overhaul, and sometimes during the honey season. It depends on whether I divide or not, or supersede her or not; and, indeed, a lot of other knots that the branding completely untangles. Now, however, can you look me in the face and say, "It is about an even stand off, with the advantage in favor of no branding"? because the time consumed in branding and finding the queen would equal the time consumed in finding the queen without the brand. Just find her. That is what the books, one and all, advise; but the books forget to add, "Find her every time you want her."

Then the last cruel aspersion, that the color might wear off a good layer! Why, the very fact that it does not do so nearly gave me a fit. One queen, branded on both antennæ, was still alive in October, and doing as well as any in the apiary, although marked as so branded over 9 months before.

My two No. 6 queens also are both alive, and the brands intact. I cannot say that any queen superseded had been so superseded through the branding. Most of the new queens requiring clipping replaced old queens, and in any case must have been superseded months after the spring branding, or I should have noticed the fact by the diminished honey-crop resulting from the swarming that such supersedure, if unnoticed, would have resulted in.

Now for the final knock-out. Just you remember that all my newly introduced queens are branded prior to introduction, so that the time spent last spring in sifting queens will never occur again if I know any thing about it. Only upon the rare occasion of being unable to find a superseded queen at the spring overhaul—and not always in such a case—will it be necessary to sift to find the victim. My queens are of very dark leather color, and this spring it was an immense relief to find so many without looking for them. I have not lost one queen except one branded on one antenna only, last year, and it is just a gamble whether she died from that, seeing another branded on both antennæ is yet alive and hearty.

Kihi Kihi, N. Z.

MENDELISM

BY G. W. BULLAMORE, F. R. M. S.

We speak of hybrids as though they were half way between the two parents; but in practice we know that some characteristics are passed on entire by one or the other of the parents. The eye color of children is an example which will occur to many people, and it is with inheritance of this class that Mendelism deals.

Mendel's experiments were carried out with varieties of peas differing in the arrangement of the flowers, the form and color of the pod, the form and color of the ripe seed, etc. He reduced his facts to formulæ, and published his essay in 1865. It attracted but little attention at the time; yet its rediscovery at the end of the last century has given an impetus to biological research; and Mendel's law has been found to hold for the inheritance of many characteristics in plants and animals.

In his investigation of heredity Mendel concentrated his attention on single pairs of characters. He found that when a tall variety of pea was crossed with a dwarf variety the first generation of crosses were all tall. But the second generation, which was the result of the inbreeding of the tall hybrids, gave plants with a proportion of three tall to one dwarf. The dwarfs, when interbred, gave dwarfs, while the talls were found to be of two kinds. One in three of them could be relied upon to breed true; the other two acted like the tall plants of the first generation, and resulted in offspring in the proportion of one dwarf and one tall plant exhibiting stability to two tall unstable plants. Mendel describes the tall character as *dominant* and the dwarf character as *recessive*. Using the letter *A* to denote this dominant, and *a* to represent this recessive, we can express the constitution of all the offspring after the first generation as $A+2Aa+a$. Another pair of characters, *B* and *b*, will give the term $B+2Bb+b$, while a third pair, *C* and *c*, gives $C+2Cc+c$. If the three pairs of terms are present in the original plants, the plants of the first generation will *exhibit* the dominant characters ABC; but in the next generation we shall get the three terms combined to give ABC+ABc+AbC+Abc+aBC+aBc+abC+abc + 2ABCc + 2AbCc + 2aBCc + 2abCc + 2ABbC + 2ABbc + 2aBbc+2aBbC+2AaBC+2AaBc + 2AabC +2Aabc+4ABbCc+4aBbCc + 4AaBCc + 4AabCc+4AaBbC+4AaBbc+8AaBbCc.

The individual represented by three letters will breed true, while those represented by four or more letters will give fresh combinations in the next generation. We see, therefore, that where there are but three pairs of unit characters we get 27 combinations in a series of 60 individuals, and that eight of the combinations, each represented by one individual, may become permanent types. The remaining 56 individuals of the series are unstable.

There is another method by which the probable results of a cross may be calculated. If *n* equals the number of pairs characters (units) under consideration, then 3 to the *n*th power will give the number of terms in the series; 4 to the *n*th will give the number of units in the series, while 2 to the *n*th will give the number of individuals, all different, whose characters will remain fixed.

If we take the letters ABC, abc, in the above formula to represent the color, nectar-gathering qualities, and temper of two races of bees, we see that the odds are against the reappearance of the original races, although something resembling them may sometimes crop up. It should be borne

in mind that such a character as special ability at the gathering of nectar must depend on many points which may each be represented by one or more units in the germ. Tongue, honey-sac, wings, antennæ, the various ganglia which govern the use of these parts of the anatomy, as well as longevity, may all play a part in pushing a stock to the front. Color may be due to factors which control the disposal of waste and the hardening of the chitin. Twelve pairs of characters will give over 4000 permanent combinations.

An interesting example of the class of work that is now being done is that on the combs of fowls. Both the pea-comb and the rose-comb are found to be dominant to the single comb. But when the pea-comb is crossed with the rose-comb we get in the first generation a type of comb known as the "walnut" comb. In the next generation we get, in a series of sixteen individuals, 9 walnuts, 3 rose-combs, 3 pea-combs, and one single comb. To explain this result, it is assumed that each dominant carries a recessive, so that the walnuts of the first generation actually consist of AaBb individuals. When these are inbred we get offspring in accordance with the formula AB+Ab+aB+ab+2AaB+2ABb + 2Aab +2aBb+4AaBb. Then the nine individuals containing the dominants AB will have walnut combs; the three containing dominant A will have rose-combs, and the three containing dominant B will be pea-combed. The remaining chick containing the recessives a b will be single-combed.

There can be no doubt that heredity in bees is also subject to fixed laws; but up to the present very little is known as to probable results, in mathematical terms, of any cross. Perhaps some of the breeders who have had great experience in hybridization may be able to enlighten us.

Atbury, Herts, England.

A PLAN FOR SECURING THE GREATEST AMOUNT OF SURPLUS DURING A SHORT FLOW

BY J. H. FISBECK

When the colony becomes strong, put on supers of empty combs. When the queen gets well started laying in these supers, and new honey starts coming in, put this super or supers with queen on a bottom-board on the same stand, adding as many supers of empty combs to give the queen and bees an abundance of room, letting her go wherever she pleases. The old brood-chamber with frames of brood and honey is placed over a colony that was used to furnish mature brood for those colonies worked for surplus. Two or three sets of brood can be given to a weak colony. When the honey-flow is over, or nearly so, place these old brood-chambers (those that were removed previous to the honey-flow) back on their original stands, putting the queen below an excluder until the brood above is hatched, and honey ripened, when it can be extracted.

The advantages of this plan are:

1. Colonies to be worked for surplus are made powerful by adding frames of sealed brood early enough before the flow to supply bees of the proper age for gathering when the white honey begins to come in.

2. Colonies are prevented from swarming early in the season by putting on a super of empty combs, and, later, removing all brood except that which is in the upper super, at the same time giving all the empty combs you wish. Surplus nurse-bees are removed this way.

3. Bees devote all their energy to gathering honey, having very little brood to take care of.

4. All the honey is new in the *present* brood-chamber and supers, and *all* is extracted after the flow.

5. These weak colonies become strong enough for surplus and cell-building, etc.

6. Good for locations where there is not a long heavy flow and you want every drop of new honey that comes in, for surplus.

St. Louis, Mo.

Dr. Miller replies:

The first factor in the case, although not first named, is that you take brood from one set of colonies to give another set. Not only do very strong colonies yield more honey than weak ones, but they yield more *proportionally* to numbers. So your management will very greatly increase the output of the strengthened colonies. Whether it will increase the total output of the entire apiary depends upon circumstances. If it be possible, by equalizing, to bring all colonies up to strong working condition, then more honey will be obtained from the entire apiary, even though the average be less per colony than by the former plan. If all can not be brought up to strong working condi-

tion, then your plan will increase the total harvest. Generally it is possible, in a well-managed apiary, to make all colonies strong enough for the harvest, whether that be long or short, so that experienced beekeepers would generally work your plan at a loss. In some cases a compromise would be advisable, bringing the largest number possible to full strength, and weakening a few by your plan.

The second factor in the case (and the two factors are independent of each other) is the taking away brood. Having no babies to putter with, the bees devote their whole energies to gathering honey. Of course, they ought to gather more than bees with divided interests. It may be worth while to do a little figuring as to what the gain really is.

The time fixed for taking away the brood is not very definite. It is "when the queen gets well started in these empty supers, and new honey starts coming in." That may be in a week or less. Let us say it is three days after the queen begins laying in empty supers. At this time about 28 per cent of the brood in the brood-chamber will be unsealed, becoming less each day, until at the end of five days it is all sealed. By taking away this brood we save feeding this more than a fourth of the brood for 2½ days (averaging from five days to nothing).

Now let us see about the brood left. At the time of removal of old brood-combs the queen will have been laying three days in the super, and in five days more she will be in full swing, and there will be as much unsealed brood to be fed as there was at the beginning. Almost surely there will be more. For the queen, previously restricted to the brood-nest, is now given unlimited territory. Just as full a force of nurses as before will be needed to feed the babies, and as no new nurses are being born, none of the force at work will be freed to go to the field. So from the day of the removal of that old brood we may count on a diminution of fielders by the amount of the daily deaths from old age. If the old brood had been left, even though the flow should be so short that not a bee from that brood should take part in the harvest, yet each bee born would be ready to take up the work of nursing, thus releasing an older sister to go afield.

So it begins to seem that we have lost enough in our field-force to balance the gain of 2½ days of feeding. Indeed, the loss may considerably overbalance the gain. The trouble is that, when we took away that 28 per cent of the brood that needed feeding, we took away with it the 72 per cent of sealed brood, and the fallacy is in thinking that that sealed brood could make no difference in the field-force in a short flow, while in fact, as already said, each bee that emerges from its cell allows another to become a fielder. If the queen had been stopped entirely from laying, the case would be different. But that's another story; and although it isn't worth while to go into it here, it may be worth while to say in passing that it doesn't generally pan out all right.

There is still left the advantage that taking away the brood stops all notion of swarming. That may again make the balance come out on the right side. But we may have that advantage almost if not quite as surely without taking away that sealed brood. Simply put it above an excluder, leaving the queen below, which is neither more nor less than the Demaree plan of preventing swarming.

Marengo, Ill. C. C. Miller.

A LITTLE IMPROVEMENT IN SUPERS

Using a Super Slightly Wider to Allow a Bee-space on Each Side

BY E. S. MILES

Some fifteen or twenty years ago the elder Mr. Pettit, of Ontario, Can., who was one of the wideawake, practical, observant beekeepers of those days, had a special arrangement to allow the bees to go up the outside of the brood-nest and into the supers at each side by means of extra bee-space left on each side of the hive and supers. Without going into the merits of such an arrangement, which, of course, was discussed pro and con at the time, I wish to say that it led me to observe that, on the side of the super where the follower was, and where a lot of bees congregated, owing to the extra space there, the sections would be built out and finished a little quicker than on the side where the comb had to be drawn out next to the side of the super, and only one layer of bees could congregate there. This was with a solid board follower, while Mr. Pettit, if I remember, used a perforated or slatted follower, which allowed the bees free passage from the clustering space to the comb. I noticed this, and thought an improvement on the common super easily possible for several years before I did any thing. But

finally, needing some more supers a few years ago, I ordered 100 made ⅝ inch wider than regular, and nailed five little blocks on the inside, on one side, these blocks being ½ x 4 x ½ or ¾. I nailed a slatted separator on to these blocks, spacing the blocks so they would come where the rows of sections join in the super, thus making a ½-inch bee-space between this separator and the sides of the super; and after putting in the sections I used a follower bored full of 5-16-inch holes, except ½ inch at each end, and the same at the three places where the follower presses against the sections.

This arrangement allows a layer of bees at each side of the super, and the outside sections are worked better than the old style, and are filled plumper, there being little if any difference in weight of outside and center sections. The best building, however, seems to be on the side where the slatted separator is, so I am rigging a bunch now with two slatted separators nailed together for a follower in place of a board. I shall use 100 with the board, and 130 with separate follower, and so find which is best.

I find no trouble in using this super on the regular eight-frame hive. It projects over the brood-chamber about ¼ inch on each side, which does no harm; and as I use the common flat cover, that does not bother either.

This is a little matter that may seem trivial; but with the eight-frame hive it will lead to one-third of our sections being better weight than with the common super, and more apt to be sealed, so it really is a thing worth having. It costs so little to try it that any one can do so. Just have the regular super made ⅝ wider, and rig up as directed above.

Dunlap, Iowa.

A HYDROMETER FOR DETERMINING THE PROPER DENSITY OF EXTRACTED HONEY AND SYRUP

BY A. N. CLARK

A Canadian beekeeper tells me that he had lost some extracted honey from souring by following the advice of GLEANINGS, the editor and other writers having stated that honey weighing 12 pounds per gallon is heavy enough to keep. It is true that such statements have been made, and it is very generally agreed that any honey that weighs 12 pounds to the United States liquid gallon is thick enough. But it just happened that many Canadians and Englishmen are not aware that the States use a different gallon from what the former do. A Canadian (imperial) gallon of honey should weigh about 14½ pounds. A United States liquid gallon contains 231 cubic inches while an imperial gallon contains 277.41 cubic inches. As English-speaking nations are over-blessed with a variety of measures, one needs to bear in mind that a gallon or quart may mean either United States liquid, United States dry, or imperial, depending on where it is used and what it is used for. Official inspectors of weights and measures tell us they have found storekeepers who bought fruit and vegetables from farmers by the "dry" quart and sold the same to consumers by the "liquid" quart, resulting in the confiscation of their liquid measure by the officials.

Beekeepers who desire to determine the density of extracted honey or of dilute honey, or syrups used for feeding, would make fewer mistakes if they used a good Brix hydrometer. I once used a hydrometer with a Beaume scale for testing extracted honey and feeding-syrups; but the Brix scale is preferable because the number of degrees Brix is equal to the per cent of sugar in a pure-sugar solution, or the number of pounds of sugar in 100 pounds of syrup. So if one wants a one-to-ten feeding syrup he stirs in sugar until the hydrometer reads 10 degrees at the surface of the syrup, and does not need to measure or weigh either the sugar or the water. If it is a syrup for winter feed he adds sugar to the hot water until the hydrometer reads about 65 to 66 degrees in the *hot* syrup, which is equivalent to two pounds of granulated sugar plus one pound of water; that is, a syrup containing two pounds of sugar and one of water will read 67 Brix at a temperature of 68 F. If a syrup or honey is tested with any hydrometer at a temperature much higher or lower than that at which the hydrometer was standardized, due allowance must be made for difference in temperature, as all liquids are lighter when hot than when cold.

Extracted honey at a temperature of 68 F. should have a density of about 85 Brix, equal to a specific gravity of 1.45; weighs a little better than 12 pounds to the United States liquid gallon, and contains about 15 per cent of water.

Of course the degree Brix does not indicate the per cent of sucrose when the hydrometer is used in honey, but it comes very

close to indicating the per cent of solids in the honey; so when we subtract the degrees Brix from 100 we obtain quite closely the per cent of water in the honey.

It is not practicable by any method to test the density of *thick* syrups or honey at a temperature below 50 degrees F. A temperature of 60 to 100 F. is much to be preferred, as the viscosity is less.

For those who might wish to make use of some form of hydrometer I would recommend a set consisting of three hydrometers —A, 0—30; B, 30—60; C, 60—90 Brix, divided to ½ degrees, and standardized at 68 Fahrenheit. A and B would be used for thin syrups for feeding, for insecticides, as lime-sulphur solutions, for water-glass solution used with eggs, and for brines and other solutions heavier than water. C would be used for testing density of extracted honey, and syrups for winter feed. Such a set can be procured for about $4.00 from Eimer & Amend, New York, or E. H. Sargent & Co., 125 Lake St., Chicago; or The Denver Fire Clay Co., Denver, Colo.

Lansing, Mich.

ORGANIZATION IN THE MARKETING OF HONEY

BY O. B. METCALFE

In the March issue of *The Western Honey Bee* I think the editor has hit it about right where he advises local organization as the first step to State-wide agreement. It is certainly the safer plan. An experiment on the part of the whole State might tie up a crop of honey more or less, and this would throw two crops on the market the following year at a price likely to be worse than ever. Five or six men, or more, as he suggests, may get together and try the thing pretty well. I do not believe that the buyers are as well organized as most beekeepers think. If they had such a snap I doubt whether they could keep it secret enough so that others would not rush in to share it with them. I suspect that competition is pretty keen between them. If it is not, you can bet that they are buying your honey on a pretty close margin. This is what the small organization may find out.

I hear some one say that they have no chance to get more for their honey when all the others sell at the same old price. That depends on just one thing. If the buyer has been fattening on an unreasonable profit, they can hunt the market and get more for their honey. If not, they may fail. If they succeed it will be an easy matter for them to induce the others to join them.

It has been my observation that one good live business-like producer who hunts the market and gets more for his produce does more to give the little man the "better-price bug" than all the arguments you can put before him. Get the best of the other fellow as to returns, and he is a believer. You don't have to argue it with him. In the mean time let every beekeeper hunt his own market with all his might.

I have wondered if it would be possible, and if it would not help the price of honey, if the bee journals would print all "honey wanted" advertisements for just the cost of printing, or even free.

One thing that organization for the purpose of raising the price of honey should bear in mind is that honey is not one of the necessities of life. If some master broker could somehow get a corner on all the honey in the United States, and then proceed to jump the price a few cents too high, he would simply keep nearly all his honey. That is all that would happen to him.

We must also bear in mind the prices of competitive products, and that the main consumer of ordinary extracted honey, at least, can sweeten his meal very satisfactorily with cane syrup. It is not a question of the relative food values of butter and honey, as some writer once talked about. It is a question of the price of good wholesome cane syrup, and how much better the consumer likes honey. If he likes it two cents a pound better, charge him two cents more for it, but stop at that.

For all I say here, I am friendly to any sound scheme for raising the price of honey. I merely wish to warn the organizers not to overlook their limitations. I once tried to make a talk something like this one at a beekeepers' association meeting in Los Angeles, and I think they thought I was making a selfish talk in favor of the buyer. As a matter of fact, I have not even tried to buy a single pound of honey on speculation for the last four years, for the reason that my buying and selling figures were always so close together that it never proved worth my while.

QUALITY OF QUEENS FROM SUPERSEDURE CELLS.

Say! "I kinder like" the editor of *The Wstern Honey Bee*. But on page three of his March issue he says that supersedure cells are inferior cells. I thought they were the very best.

DO BEES ANTICIPATE THE END OF A FLOW?

Dr. Miller, in Stray Straws, March 1, quotes Dr. A. Ludden as having explained the crossness of his bees with a theory that the bees anticipated a stoppage in the honey-flow. Perhaps Dr. Ludden is right, for such is the case here in the Mesilla Valley of New Mexico. Even as long as two or three days before the end of a honey-flow, and while the scale hive may still be showing a good gain, the bees are often so cross that one needs a veil to go among the hives.

I wonder, though, if Dr. Ludden has a locality similar to mine—one where the honey-producing plants are cut down in full bloom. I had it figured that hives No. 1, 20, 60, 80, and so on, had been working on the fields, we will say, of Mr. Davidson and Phillips, and that their fields, having stopped yielding in a single day, these bees were quite naturally on the war-path. Still other colonies in the same yard had been working mostly on other fields in different directions. With his theory in mind I had supposed that where a honey-plant was allowed to bloom itself out, and therefore shut off the honey-flow gradually, there would be none of that vicious fighting.

SOME NEW-OLD PLANS THAT ARE GIVING SUCCESS

BY JOHN S. REESE

For the benefit of the ever increasing number of beginners and new recruits in the ranks of the army of beekeepers, we will mention a few of the new-old things that are being used successfully by the veterans and large producers of honey.

Painting queens is one of the most helpful of the new-old things we have adopted very recently. Having painted more than one hundred black and yellow queens the past season, we failed to find a single objection, in any way, and we tried it on virgins just hatched, and, in fact, every way we could think of. It is simple and easy to do, and enables one to find his queens quickly every time.

Introducing queens direct by the smoke method, with a few tobacco crumbs added to the smoker, as described many years ago by Alley, we have practiced with success, but now prefer the Miller plan of stopping up the entrance for a short while. The tobacco or a few drops of carbolic acid may be added to the smoker, if you like. We have never found it necessary to plug up the entrance at all if the introducing is done late in the evening, when the bees have quit flying for the day.

Greasy, discarded waste for your smoker may be had at any machine-shop or around where engines are used. You will want nothing else in the fuel line. Use largest size of smoker always.

Now how about those carbolized cloths? If you have never tried them, do not wait any longer. Get busy.

The steam honey-knife has come to stay, and works like a charm. Begin with a good one, and save time and money.

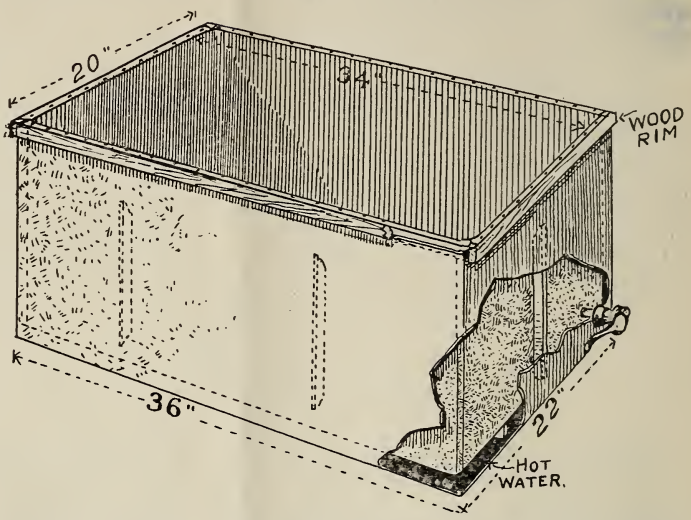
The bee-escape has undergone improvements until the Porter double-ender seems to have reached perfection, and is an indispensable little implement. The first style published was invented by a beekeeper (the writer), who just had to have some way of getting the bees away from the honey automatically, and he thought of the wire-cloth fly-trap with the small hole in the apex of the cone, and applied it to the bee-escape. It works well yet; but use the double-ender Porter and be happy.

Now, Mr. Bee Ginner, have your queens' wings clipped; and when the swarm comes out, catch the queen on the ground, put a glass tumbler over her, as my wife does, if you like; move the old hive to a new location, and hive the returning swarm on the old stand, then read A B C and X Y Z again, also GLEANINGS.

Bee-tents will be fully tried out this season, especially the style that fits snugly over the top of the hive; also the bunch of horsehair or cow's tail placed at the entrance to stop or prevent robbing. The left wing tip of the turkey to brush off the bees from extracting frames, and may be other things, would be all right.

Well, the capping-melter has also come to stay; and of the many good styles that are offered, here is another, not new, with plans that may be varied as to size, etc. The first box of this kind we saw at Muth's place in Cincinnati some years ago, which he used for rendering old combs and dirty wax through a Hatch press. As the plans indicate, the inside of this double box is 20 inches wide, 16 tall, and 36 long. It will hold about 47 gallons. This size can be made from two sheets of galvanized iron, 36 inches wide by 7 or 8 feet long, and two sheets costing about two dollars, and a few hours' labor by a tinner who has a folding or bending machine. A honey-gate put through one end at the bottom will let out

the honey as it drains from the cappings, or the warm wax and honey when the water is heated by the fire under the box. At one end near the top should be an inlet for the water, where, also, may be arranged for the connection of the steam honey-knife tube; but this should not be the only means for steam for the knife as uncapping may be necessary when you would not want to heat up the double box. Any arrangement put in the box for screening or allowing the honey to drip from the caps should be movable, so they will not be in the way when rendering old combs and wax. This box is ideal for rendering wax, as the fire does not come in direct contact with the contents of the inner box, therefore will not boil over, which is worth all the money the box cost. A wooden frame may be put around the top just right to hang L. frames crosswise.



Suppose we call this the Reese capping-melter and wax-rendering-box.

Winchester, Ky.

A WORD ABOUT IOWA LOCATIONS

BY FRANK C. PELLETT

Unfortunately, too many men use bad judgment in starting in honey production, and locate in territory already fully occupied. This cannot but result disastrously for both the man already on the ground and the new man as well. Here in Iowa there is plenty of unoccupied territory without infringing on the rights of those already established. In many counties there is not a single large apiary. In view of these facts it seems strange that there is a tendency to crowd in on some one else. One instance recently came to my attention of a man starting within less than a mile of a man who is conducting the business on a rather extensive and very successful scale. Those who contemplate taking up honey production should by all means find an unoccupied location or stay out of the business. In the vicinity of several of our larger cities there are already plenty of bees to gather available stores. In the vicinity of others with equally good markets no beekeepers are located. It is this senseless and inexcusable crowding that makes so many afraid of any systematic attempt to develop the business along the lines by which other industries have been made prosperous. If those who contemplate taking up the business in this State will communicate with me I will endeavor to assist them in finding a location that will not interfere with either forage or local markets of others who have prior rights. While it is desirable that unoccupied territory be taken up it is surely not desirable that localities already occupied be overstocked.

AN EPIDEMIC OF EUROPEAN FOUL BROOD.

Foul brood is rapidly placing the business of honey production in the hands of specialists. All over the State the inspectors are finding those who formerly kept a few bees in possession of a lot of empty hives. Just now reports of a very malignant type of European foul brood are coming in from all parts of the State. Beekeepers should be on the watch to check it at its very first appearance. It is appearing in many new localties, and may be expected at any point. In some localities where there were prosperous apiaries a year ago the owners find themselves almost entirely out of business this year. It is very apparent that those who will not take up beekeeping systematically will not last long under present conditions.

Atlantic, Iowa.

Heads of Grain from Different Fields

THE BACKLOT BUZZER

There's nothing like requeening at the right time; but why the samhill is it carried out in high society? The man who still thinks bees don't do any good to his fruit-trees is the man who doesn't have his home pointed out when the rubber-neck wagon man goes by.

Conditions Under which Red Clover will Yield Honey for the Common Honey Bees

After reading the April 1st issue of GLEANINGS I arrived at the conclusion that some of the articles on queen-rearing smacked quite strongly of free advertising. When any one of them will go so far as to say that his queens are descendants from *one* whose bees stored surplus honey from red clover when all the rest in his apiary were storing dark honey-dew, you can size up such men as *frosts*. This reminds me of an article that appeared in your columns years ago in which a certain queen-breeder claimed that *his* were descendants from one whose bees stored surplus when all the rest in his apiary were starving. I wrote an article in reply to it, and offered $100 to any man who would put a swarm of bees in my apiary that would store surplus when *my* bees were starving; but the $100 was never called for; and I will renew that as a *standing* offer to any man who will bring or send me a colony of bees that will do that, or store surplus honey from red clover when my bees are storing dark honey-dew. Yes, I will make it still stronger—give $100 to any man who will bring or send me a colony of bees that will store surplus red-clover honey at all, or who will send me a queen that will produce such bees. Here is a chance for some of those queen-breeders to get busy and earn easy money. If I remember correctly, some years ago you paid $200 for a queen, and I bought of you two or three of her daughters; and I will say that they produced *good* bees, but they never stored any surplus red-clover honey, neither did any other man's bees ever do that. I have bees that work somewhat on red clover; but as to surplus honey, *never*.

After reading the articles above referred to I wrote one of these gentlemen, inclosing a stamp for reply, and asked him to send me the address of one or two of the breeders from whom he received his best stock. Did he do it? No, indeed. He wrote me a letter stating that that would be indiscreet, and knocking the *other* fellow's business, but very kindly inclosed *his* queen price list and circular in which he claims that no queen is allowed in his apiary whose bees do not clean up foul brood immediately, and that the infection is plentiful in his locality. He further says, "Our main fall flow is mammoth clover, from which we get a great many pounds of honey annually," but note he does not say mammoth *red* clover, though that is the inference that he intends to cast before the unsuspecting and amateur beekeepers. He *might* say that *sweet* clover was *mammoth* clover because it grows much taller than red clover, and all beekeepers know that all bees work well on it, and store surplus honey, and also that its season is the same as he refers to, and I wish to state that, in my opinion, all such statements as referred to are misleading, at least, if not untrue, and they are made for this purpose just as much as the ones are to which you often refer with reference to the so-called goldens; and if *this* man's goldens are so far superior to all others as per his article, why does he quote prices on goldens, three-band, and leather-colored all the same price? He can, perhaps, tell us.

Union Center, Wis., April 22. ELIAS FOX.

[We cannot believe that there was any deliberate attempt by any of the writers in the April 1st issue to secure free advertising, for several voluntarily suggested that we substitute a *nom de plume* for their names if we thought best.

Mr. Fox is evidently basing his statements on what takes place in his locality. The question of whether red clover yields honey or not depends very largely on the season and the locality. In some places the soil is "clover-sick"—that is, lacking in lime. In other places it grows luxuriantly, especially some seasons. A heavy luxuriant growth of common or peavine red clover will not yield honey as well as that grown on a soil or in a season that is too dry to grow more. The reason of this is plain: Bountiful and frequent rains in early spring will make red clover have longer corolla tubes than in a spring when the weather has been dry. In a dry season on a poor soil some bees can reach the nectar from red clover because the tubes are shorter. We have verified this in our own locality time and time again, and any one can do the same if he has the proper soil conditions and a diversity of seasons.

There is one more factor—a fact which we have proved out beyond any question, that different strains of bees have different tongue-lengths; but the longest tongue-length of any bees of any strain except bumblebees will not reach the nectar in the long corolla tubes of red clover; in fact, a great deal of the time even bumblebees can't reach it. We proved that out to our own satisfaction some years ago. But they reach enough of it to cause a fair seeding.

There is another interesting fact—namely, that the nectar rises higher in the corolla tubes some seasons

than others. This occurs in a year when every thing seems to yield bountifully of honey.

When we happen to have the right combination of seasons, soil, humidity, and bees, we can get some red-clover honey—yes, even a surplus; but it is seldom that the entire favorable combination is present.

Taking these facts into consideration, it is easy to see why there should be a difference in reports regarding the fact whether red clover yields honey or not.

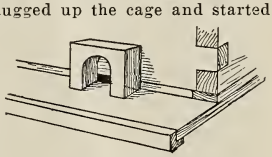
Mr. Fox is perfectly safe in making his offer of $100, as no bees in his locality could probably win the prize; but this is not saying that the conditions may not be right elsewhere for an occasional surplus from red clover. Practically all strains of bees can gather honey from red clover when the season conditions and soil are right. There are other seasons and soils when no bees of the *Apis mellifica* can get the nectar from it.—ED.]

Introducing by the Smoke Plan; a Block to Facilitate Running the Queen into the Entrance

I believe I can go Arthur C. Miller one better on the direct introduction of queens. I have practiced for several years the running-in of queens at the entrance with smoke, but always with more or less bother, and every now and then I had an escaped queen in the air. After reading Mr. Miller's article in which he advised contracting the entrance to avoid the escape of queens, I tried the method, but found the bulk of my old troubles still remained.

I usually introduce direct from a nursery cage. My practice was to watch the cage until the queen started for the exit, then place the cage quickly at the entrance and follow the queen up with smoke, provided she went in. But not infrequently she would change her mind, and the hive entrance prove no temptation, and then the watching process would have to be repeated, and possibly repeated several times, and this just at a time when not a minute could well be spared.

I was attempting to introduce a fickle virgin one day that had baffled several attempts to get her from the cage. I finally plugged up the cage and started for the shop, and cut out the little U-shaped block shown herewith. I again gave the queenless colony a good smoking, placed the U-shaped block at one end of the entrance and a retaining piece of wood across the other end. I placed the opening of the cage against the opening of the block; picked up my smoker, and a few gentle puffs of smoke put the virgin inside the hive. The U-shaped block forms a passageway between the cage exit and the hive entrance. I have introduced several dozen queens with it since, and they all went, and went quick, and stayed inside the hive.



Prophetstown, Ill., Aug. 25. HENRY STEWART.

[The scheme here shown, of a little device that adapts the mouth of the queen-cage to the entrance of the hive, is all right. We use the Dr. C. C. Miller introducing-cage exclusively for the purpose. It is oblong and flat, so that it readily adapts itself to the entrance of the hive without an adapter.—ED.]

The Florida Dragon-fly Not Troublesome in all Localities

On page 444, June 15, the editor speaks of the dragon-fly. They are very bad on the east coast, also in all sections where there is heavy timber. We are not bothered here at all. A couple of years ago I had one apiary in thick woods by a marsh, and there they bothered considerably; but I have not had trouble since moving them out.

The last half of saw palmetto was cut clear off, as it blighted. The first part yielded well; the same with the orange; gallberry was all blighted.

The mangrove is partly blighted with a good bloom, but we shall not get much honey from it unless it rains. It has to have lots of rain to yield well.

Palmetto, Fla., June 24. C. H. CLUTE.

[Palmetto is just across the river from Bradentown. Our neighbor Rood, just opposite A. I. Root's residence, says he has had no trouble from dragon-flies to speak of. We are quite ready to believe that it is not a pest in and about Palmetto, as there is not much timber of any sort in and around the town. There is a considerable growth of low timber in and about Pompano. It appears these flies get in their destructive work during the month of April. There is a large amount of timber, especially of tupelo, in our location near the Apalachicola River—in fact, all up and down the river. The dragon-flies do much damage in queen-rearing operations in that part of Florida during May and June.—ED.]

Shipping Comb Honey by Parcel Post

My father lives at Glen Rose, Ohio, about 15 miles from Cincinnati, while my father-in-law lives at Newport, Ky., across the Ohio River from Cincinnati. Thinking to send them some honey I prepared two packages, each consisting of 8 one-pound sections packed in a corrugated three-pound comb-foundation package. I first wrapped the sections in waxed paper, then laid them two deep on the bottom in the middle, and closed the cover, almost, then wadded newspaper along the sides tightly in order to prevent side play. I finally wrapped the package in wrapping paper. Father replied that his package arrived with the loss of about a tablespoonful of honey from one of the sections, this being within the waxed paper. My father-in-law replied that his honey arrived in perfect condition.

Thinking to test further the parcel post I prepared another package, consisting of one of your three-pound foundation boxes (corrugated paper), containing one shallow Hoffman frame of honey, wrapped in waxed paper, tightly held in place with wadded newspaper. The frame was a little too long, so I cut off the ends. This package I sent to a relative near Hutchinson, Kas. The package was received in first-class condition also, no loss of honey.

My conclusion has been that, if sufficient care is taken in packing, particularly to prevent any movement of the individual package and sufficient covering to prevent the escape of liquid honey from the package if comb should be broken, the same can be shipped by parcel post.

Springfield, Mo. E. T. BOND.

[That comb honey *can* be sent by parcel post is probably true; but we have hesitated to advise the practice, because we feared that only a few persons would be successful in doing so. All the rest will make a bungle of it, and the result will be that comb honey will be ruled out from the parcel-post privilege as it is not now. We are taking the matter up, and hope we may be able to get small packages that will carry safely half a dozen sections of honey. A larger amount should not be sent in this way. In the mean time we wish to offer a caution against trying to send comb honey by parcel post for the present. We cannot afford to lose a valuable privilege—a privilege that will be very valuable in the future—by some ignorant carelessness at the present time.

A few years ago queens were barred from the mails for some months just because of the inexcusable carelessness of two or three beekeepers who attempted to send live bees in paper boxes. The mail clerks were stung, and forthwith a ruling was issued, forbidding the sending of queens by mail. What a time we had in getting back the privilege!—ED.]

A. I. Root

OUR HOMES

Editor

After this manner, therefore pray ye: Our Father which art in heaven, Hallowed be thy name. Thy kingdom come. Thy will be done in earth, as it is in heaven. Give us this day our daily bread. And forgive us our debts, as we forgive our debtors. And lead us not into temptation, but deliver us from evil: For thine is the kingdom, and the power, and the glory, for ever. Amen. MATT. 6:9-13.

For some time back the Lord's Prayer has been much on my mind. Our readers will notice I have touched on it several times. Now, with this in mind you can readily imagine how deeply I took in the following sermon, preached by our good pastor. I said "amen" so many times that I hesitated about saying it any more, although I felt the sermon deserved it. You, my good friends, may say amen as much as you feel like it as you read it over.

A SERMON PREACHED IN THE FIRST CONGREGATIONAL CHURCH, MEDINA, OHIO, BY REV. H. SAMUEL FRITSCH, OCT. 26, 1913.

The seven petitions of the Lord's Prayer fall naturally into groups—three, one, and three—three petitions relating to great universal facts of God—thy name, thy kingdom, thy will. One petition concerned with man's physical, temporal, material needs—daily bread. Three petitions for the inner, spiritual needs of man—which group forms the basis of our study to-day—"And forgive us our debts as we forgive our debtors. And lead us not into temptation, but deliver us from evil" (Matt. 6:12,13).

"*Forgive us our debts*"—what debts?

Certainly this petition does not cover the debts which man owes to man in a business way. It does not mean that the man who owes the baker for bread, the butcher for meat, the grocer for coffee and sugar, the tailor for clothes, or even the church treasurer for subscriptions, can get out of paying those debts by devoutly praying, "Forgive us our debts." Such debts can not be *forgiven,* they must be *given for.* They can not be canceled by praying; they must be canceled by *paying.*

Neither does this petition cover the debts that man owes to his God. We owe him a debt of love—"Thou shalt love the Lord thy God, because he first loved us." We owe him a debt of gratitude—"Oh give thanks unto the Lord, for he is good." We owe him a portion of our worldly goods—"Honor the Lord with thy substance and with the firstfruits of all thine increase." We owe him a debt of service—"Ye are not your own, for ye are bought with a price." These are all debts that we must pay. They are charged up against us in the divine ledger; and the petition "Forgive us our debts" is not a cheap and easy way of sidestepping the obligation by having the account wiped off the books. "Pay what thou owest!"

But what are the debts for which we should pray forgiveness? St. Luke's version of the Lord's Prayer leaves no doubt or ambiguity: "Forgive us our *sins.*" This petition, then, is a prayer for the forgiveness of sins.

Now, just what did Jesus intend when he taught us to pray, "Forgive us our sins"? Assuredly he did not mean, as some have fondly and foolishly imagined, that, if fervently prayed to do so, God will overlook our sins. I once knew a good church-member who made his pocket money by trading horses. In spite of his high standing in the church, his trades were often "fearfully and wonderfully made," and his ways in a deal were past finding out. This good man made it a practice every morning at family worship to pray thus: "O Lord, if to-day in the course of worldly business I commit wrong or deal unjustly, wilt thou in thy great mercy forgive me." But think you that that prayer would cause the recording angel to omit making an entry of that man's dubious deeds for that day? Think you not, rather, that the deliberate intention that lurked back of that prayer caused the recording angel to make a double entry—one for cheating at a horse trade and another for cheating at prayer? He who keeps right on sinning, expecting to fall back on the petition, "Forgive us our sins," will, I fear, fall mighty hard! Never can the promise of forgiveness of sin be taken as a license to commit sin.

Again, "Forgive us our sins" does not mean that there is any process of forgiveness whereby the natural results of sin may be canceled or annulled. The forgiveness of sin does not wipe out the natural penalty of sin. "The soul that sinneth, it shall die." Sin is a destructive force; and in proportion as a soul sins, it kills its finer fibers and its softer sensibilities. Sin is soul-suicide; and the bloody corpses of those of my talents and powers and opportunities that I have deliberately slain can not be restored to life, even by divine forgiveness. The slayer may be forgiven, but the slain come not to life again. "The wages of sin is death." Sin always comes back with the yellow pay-envelope; sin never accepts forgiveness for its debts. "Be not deceived; God is not

mocked; for whatsoever a man soweth, that shall he also reap." The young man who sows his "wild oats" may be forgiven by the society which he has outraged and by the God whom he has wronged; but there is no process of forgiveness which can wipe out the terrible *harvest* crop. Be not deceived; the law of cause and effect is never set aside; the sinner may be forgiven for his sin, but he can not escape the penalty of his sin.

But what, then, is the purpose of this petition, "Forgive us our sins," if it neither furnishes license to sin nor yet cancels the penalty of sin? It is a prayer with power to remove the *guilt* of sin.

The worst thing about sin is the feeling of guilt that it produces. Not too strongly does Byron speak of guilt as

> Oh that pang where more than madness lies—
> The worm that will not sleep, and never dies!

And the worst thing about guilt is that it puts an impossible and impassable barrier between the soul and its God. As the guilt of the naughty child makes him shun his father and mother, so down from the time when Adam and Eve hid themselves in the garden, the guilt of man's sin has held him aloof from God. Man's guilt did not hold God aloof from man; it held man aloof from God. The guilty conscience always takes it for granted that the wronged party is holding himself aloof in anger. So man in his guilt took it for granted that God had withdrawn himself, burning with vengeance; and guilty man, instead of permitting himself to be drawn tight to the father-heart of God, held aloof and tried to propitiate an outraged parent with burnt offerings and sacrifices, with rituals and ceremonies. To overcome this aloofness, God sent his Son, not to reconcile God to guilty man, but to tell guilty man that God is reconciled, that God never was angry. God sent his Son to say to guilty man, "Never mind, my children. You've done wrong, and feel guilty; but don't let that feeling of guilt keep you away from me. Come! I forgave you long ago; come back to my heart." Oh the measureless, matchless love which kisses away the sense of guilt, and folds us tight in the embrace of forgiveness!

But if God has thus fully and freely forgiven, why then should we still pray, "Forgive us"? It must be understood that the prayer for forgiveness is not a plea that God may be forgiving—God needs no such plea. It is, rather, a plea that we may receive and accept that forgiveness, that the burden of guilt may be lifted from our hearts, that the barrier which guilt has thrown between us and our God may be broken down.

Before leaving this petition, it is well to remember that there is a condition attached: "Forgive us our debts, as we forgive our debtors." Listen, friends, are you and I willing to have God take us at our word, and forgive us *as* we forgive our friends? Are we willing that God should be as reluctant to forgive as we sometimes are with as many mental reservations, or with that complacent condescension which requires the pardoned one to grovel in the dust at our feet? "As we forgive our debtors." Let us be so loving and kind in forgiving our debtors that we would not be shocked or grieved if God should take us at our word when we pray this petition.

"*And lead us not into temptation.*" Of all the petitions in the Lord's Prayer, this one has most troubled thoughtful people. God being God, does he ever, can he ever, lead anybody into temptation? And if God does not and can not lead anybody into temptation, then what's the use of asking him not to? Yea, verily, if God does not, and can not lead anybody into temptation, is it not presuming terribly to ask him not to? and is not that presumption dangerously close to blasphemy?

Did Jesus believe that God has a disposition to tempt people, a disposition which would make it wise for humanity to pray unceasingly, "Lead us not into temptation"? No words on this question from Jesus himself are preserved to us; but it is quite probable that he discussed the subject of temptation with his own family, as well as the circumstances of his own temptation. At any rate, this is what James, own brother of Jesus, says about temptation, and we may well believe it is a reflection if not a repetition of the teaching of his divine elder brother: "Let no man say when he is tempted, 'I am tempted of God.' For God can not be tempted with evil, and he himself tempteth no man. But each man is tempted when he is drawn away by his own lust, and enticed." It is contrary to the nature of God, therefore, to tempt man, and we must seek for some other interpretation of this petition than that which asks God to please be so kind as not to lead us into temptation.

This better interpretation we obtain by a common-sense punctuation of the petition. It was never intended that this sentence should be spoken in one breath: "Lead us not into temptation." The intended meaning is brought out by making the pause of a comma or of a dash after the word *us*. "And lead us—not into temptation—but deliver us from evil." We may bring out the thought by paraphrasing the petition thus: "O Lord, there are many objects and conditions and circumstances that appeal to

our baser natures and inflame our lower passions. If we walk alone we are sure to blunder and stumble into some of these. We are like children that know not the pitfalls and the snares. We must be led. O Lord, take us by the hand, and lead us, lead us away from temptation."

James says that God tempteth no man, and he is right. George Eliot says, "The devil tempts us not; it is we who tempt him, beckoning his skill with opportunity," and she is right. Nothing from outside ever tempts man. Temptation always comes from within. But there are certain objects and persons that act like a lighted candle to the powder-magazine within. Now, there is little use in praying God to remove the powder-magazine from within us. God put the powder-magazine there for a purpose. Neither is it incumbent upon us to pray God to blow out all the candles in the world. If all the candles that tempt humanity were to be snuffed out, this would be a monotonous and melancholy world indeed. Virtue in connection with temptation consists neither in the removal of the powder-magazine, which is the internal capacity to do evil, nor in the extinction of the candle, which is the external stimulus to evil. It consists in walking so carefully and circumspectly that the flame never gets near enough to set fire to the powder.

But there are two facts which make such moral chalk-line walking extremely difficult —our ignorance and our curiosity. We blunder into temptation because we are ignorant of the location of the pits and the snares. We *coquette* with temptation because we are curious. Although we have no disposition to be caught, we love to "nibble" at the devil's bait. Although we have no intention to invest, we like to paw over the sales on the devil's bargain counter. Although we have no desire to get burned, we delight to play with fire. Although we have no desire for a ducking, we like to see just how far we can skate on thin ice. Because of our ignorance and our curiosity we need a strong arm to lead us—the arm of one who knows the snares and steers us away from the pits—the arm of one who will firmly drag us away when, like little children, we hang back to pat the pretty redhot stove or to play with the beautiful rattlesnake. Lead us—so that we do not stumble or wander into temptation. Lead us—not into temptation.

> Savior, lead me lest I stray;
> Gently lead me all the way;
> I am safe when by thy side,
> I would in thy hand confide.

The next petition is closely linked to the preceding one. "And lead us, not into temptation, *but deliver us from evil.*" We can not always flee from temptation. Duty and necessity often demand that we go where temptation is thickest. Then we need to pray for deliverance—"Deliver us from evil." "Lord, lead us, so that we may not ignorantly stumble or wantonly wander into temptation. But if duty demands that we take the path where ten thousand temptations lurk in ambush; if, to develop the moral fiber of our character, it becomes necessary for us to resist temptation even as the resistance of the tossing storm puts the iron into the majestic oak, then, O Lord, give us the strength to overcome, that we may be delivered from evil, even as the soldier is delivered from the enemy that lies vanquished under his heel."

To pass by on the other side when there is no occasion to go near temptation is both wisdom and virtue; but to walk away from duty because the path of duty leads *through* temptation is both selfish and cowardly. The medieval monks who locked themselves behind stone walls away from the allurements and temptations of the world believed themselves most self-sacrificing and brave. But were they not rather most cowardly and selfish? "I pray not that thou shouldest take them out of the world," petitioned Jesus, "but that thou shouldest keep them from evil." Duty never runs from temptation. Duty meets danger bravely, fights heroically; and, fighting, prays, "Deliver us from the evil."

The noblest character, too, is not grown in glass houses, shielded from every blast and chill of temptation. It is developed on the bleak hilltop where the wild storm breaks most furiously. There is no snap in the character of the one who always has a soft snap. A wealthy mother was lamenting the puny, sickly condition of her child. Another mother, a wholesome, practical woman, spoke thus: "You are killing the child with mistaken care. The little thing hardly knows what it is to put her foot on the ground. She is wheeled in a cab all day long. The little dear hardly knows what her feet and legs are made for, and she is not allowed to use them in a normal way. Put her on the ground and let her walk and run and fall down. Suppose she does get some blue bruises. She needs more color. Turn her barefoot with a simple, sensible dress on. Suppose she does stub her big toe. Blue forehead and blue toes are better than '*blue pills.*' I wish *I* had her for a while. I'd have her rosy, and fat as a little pig."

It was for the sake of Timothy's character that Paul advised him to endure hardship. The ancients believed that the strength of a

slain enemy, by some subtle process, was passed over into the body of the victor. Certain it is that every temptation overcome makes us that much stronger. Oh let us not always pray for easy, sheltered, shielded lives! Let us pray for strength to resist, power to overcome! Let us pray for that deliverance *from* evil which comes by victory *over* evil.—*Rev. H. S. Fritsch.*

May I be permitted to add a little in regard to forgiving our debtors? It sometimes happens, although not very often, that a man is absolutely *unable* to pay his debts, perhaps to pay the baker for bread. Sickness and other misfortunes may so bring it about. In such a case the baker should forgive it and forget it, and feel just as friendly and pleasant toward the debtor as if it had never happened. Of course there are people who, perhaps, are a little too ready to give up and say they can not pay, when they really *might* pay if they tried hard enough. There is another thing in connection with this matter. The burden of supplying needy but helpless people with bread should not all fall on one person. When a man by misfortune gets into a destitute condition, the best way is to have some friend start a subscription, and take the money thus raised from the community at large, and pay both the butcher and baker, or at least pay the greater part of the debt. Still another thing, this injunction to forgive our debtor, it seems to me, is intended to ward off neighborhood quarrels, and especially to guard against holding a "grudge," if I may use the slang expression. Sometimes neighbors get into a jangle and will not speak to each other, not only for months but sometimes for years. I think this latter case, however, is a good deal a thing of the past. Years ago there used to be jealousy and clashing between men in the same line of business; but if I am right *this* is largely a thing of the past. People in this enlightened age are becoming ashamed at this sort of narrow-mindedness. "Forgive and forget" is getting to be the rule; and I have reason to believe, too, that people of the present day will hardly *tolerate* a man who prays in public, and cheats in a horse-trade at the same time.

The suggestion that we love to "*nibble* at the devil's bait" made me smile while I uttered my biggest amen. It made me smile to think how many times during the past seventy years I have gotten into trouble because I was curious in regard to Satan's machinery. When the spirit rappings first came out and my good mother urged me to keep away from their "seances," I urged that it would do no harm to "investigate;" but when I saw one good man, a minister of the gospel, go to the insane-asylum, I decided that my mother was right. Small boys, and sometimes larger ones, are curious to know what *beer* and *whisky* taste like, and urge that "it would do no harm to take just one taste," feeling sure that it would be just one taste and no more. And it is the same way with cigars and tobacco. Oh dear me! what a world of sin and trouble comes from temptation that poor weak humanity can not resist! The temptation to "coquette" with the devil, or to take "just one little nibble," showing off our skill in letting people see how we can "skate on thin ice," is along the same line.

If any of our friends would be glad of a sample copy of this sermon to send to their friends, just say so on a postal card. The illustration of the foolish mother who wheeled her child about in a cab when her child was perfectly able to walk, brought out another hearty amen. By all means let us have the "blue toes" in place of the *blue pills.*

MARCONI AND SOME INCIDENTS OF HIS BOYHOOD.

I presume our readers have seen a notice in the papers to the effect that Marconi expects to be able soon to telephone across the Atlantic by wireless. Just think of a human voice being carried clear across the ocean! I well remember the excitement about the Atlantic cable, and the cheers that went up (after long and disappointing delays) because *signals* had actually been received. Little did we dream then that the time would ever come when that expensive cable could be dispensed with, and that we could not only *talk* through the wire but the final outcome would be that we should be able to talk without *any* wire at all.

With the above for a preface let me state that I have quite recently had quite a talk with Mr. A. E. Roberts, International Y. M. C. A. Secretary, of New York. Just recently Mr. Roberts was sent by our Government to investigate agricultural problems in the Old World. During his trip he met at Bologna, Italy, Marconi's father, still living. The father said this about his boy: He said the boy either would not work at what he wanted him to do or else he had hard work to make him do it. He was so busy exploring every thing that he could not take the time for routine duties. One of his tricks was to pull all the clocks to pieces in the neighborhood to see how they were made; but I think he got them together all right. His father said he spent so much time with wires, cogwheels, and such

trifling things, that they were tempted at times to think he was not quite level in his head. The boy finally ran against electricity; and he was so eager in experimenting that he would hardly take time to eat his meals. His first success in wireless was in getting communication from one corner of his father's farm to the other. Then he began to have visions of great things. But some neighbor dampened his ardor by telling him he could not get over hills and mountains. In order to test the matter he secretly got one of his father's hired men to help him, and then the two went away to where there was a considerable hill. The attendant was to go to the further side of the hill and report if he received any signals. The signal came through all right, as we *now* know it would do; but the boy did not know it then; and when the attendant returned the signal, and told him the hills were no *obstacle,* he was so overpowered by the good news that he went into a dead faint, and the attendant found him unconscious.

The above illustrates the *intense eagerness* with which the boy worked, and his peculiar sensitiveness to disappointment or the reverse. Now, here is a moral. I have frequently talked about the "sports" among fruits and vegetables. It transpires that there are sports in humanity. This boy, with his queer passion for the wonderful things in nature, was for a time thought by the neighbors, and perhaps by his father, not quite evenly balanced.

Some time ago I told you of a young girl with whom I became acquainted in my early manhood. After I had set her at work in our factory her mother made some inquiries, and ended up by saying, "Well, Mr. Root, if she is of any use to you in the factory, do, 'for the land's sake,' keep her as long as you want to. She is 'not a mite of use' in doing housework around home." Her mother did not understand even her own child, and did not recognize that God calls us in various directions.

HEALTH NOTES

CHERRIES AS A HEALTH FOOD.

May God be praised for the beautiful luscious cherries that we have been having since about the middle of June, and are still having to-day, June 27. Just as my apples began to give out (about June 12), beautiful cherries appeared in the market, and they are about the finest ever grown in this vicinity, so far as I can remember. In our new home, when we moved into the bungalow there were just two cherry-trees that did not stand in the way of the buildings. These were so full of bloom shortly after I returned from Florida that I told Mrs. Root it would be impossible for *all* the blossoms to produce cherries; but when the trees were loaded with beautiful fruit, one ripening perhaps ten days or more before the other, I began using them in place of my accustomed apples, and it was one of my "happy surprises" to find that they answered just as well, and, in fact, a little better; and just now my verdict would be that plenty of sweet luscious cherries are fully equal to grapefruit for kidney or urinary troubles. In order to satisfy myself in regard to the matter I ate a great lot of them not only at my five-o'clock supper, but I ate more just before going to bed to see if they would disturb my digestion or my sleep; and good old dame Nature did not make the least bit of protest. In fact, I have never felt better, and it seems I have not for a long while had so much strength for working in the garden with my light keen hoe as since I have been on the "cherry diet."* By the way, there is one thing peculiar about the abundant cherry crop this summer. There do not seem to be any of the mischievous curculio or other insects, and as a result there are but very few wormy cherries. Let me give you a clipping in regard to the matter, from the *Plain Dealer:*

CHERRIES GO DOWN TO $1 PER BUSHEL.

Cherries were in the heaviest supply ever known on this market, and the prices were the lowest ever known. Sales of pretty good stock were made at from $1.00 to $1.50 a bushel crate; there were sales at $2.00 in the early morning. One grower had a wagonload on which he offered to take 80 cents a bushel. Good sweet cherries still bring $3.50 and $3.75 a bushel, and as high as $4.00.

I wonder if this great crop of cherries has not been a blessing to others as well as to myself. When I first began to go to school some seventy years ago the teacher taught

* *Later.*—Since the above was in type I have eaten some cherries that were rather tart, and not fully ripe. The result was not quite so encouraging. I think it is best to add that the fruit should be dead ripe, and perhaps not too tart, in order that we may eat it with impunity. And, by the way, if you are going to eat *any kind* of fruit to the extent I do, especially if you are elderly like myself, be sure the fruit is dead ripe. Apples that are not real mellow and well ripened have often disagreed with me in the same way as did the sour cherries not perfectly ripened.

us a little nursery song. I think it started:

Cherries are ripe!
Cherries are ripe!
Oh give the baby some!

Now, if it is really true that the cherries did not injure the babies, but, on the contrary, did them as much good as they do your old friend A. I. Root, it seems to me we can all give a little more attention to the cherry crop by planting the varieties that ripen at different times, as in that way the season can be prolonged a month or even six weeks; and when cherries are gone in Ohio you can take an excursion up to the northern part of Michigan and find plenty of them, I think, well up into the month of August.

Now just one more suggestion in regard to cherries. Why cannot cherry juice be put up in little bottles just as grape juice is kept for sale at our corner groceries, at a price that everybody could afford at any time in hot weather? Did not the Creator give us the luscious cherries just when the hot weather comes on, *because* at such a time everybody craves (*and needs*) this delicious acid fruit?

You may recall that, some years ago, I spoke of a big factory in northern Michigan where they bought cherries of the farmers and "processed" the juice to supply the soda-fountains of our land with *real* fruit juice. I have before mentioned that grape juice is probably taking the place, to a great extent, of intoxicating beer and other liquors. Now, why can we not have *cherry* juice put up in the same way? My good friend W. P. Root just informs me that in this county cherries are allowed to hang on the trees and rot, because it does not pay to pick them. One man who had more than he could sell said, "They are a nuisance this year." Surely these luscious fruits might either be canned, or the juice be preserved in some way, especially if it would conduce to the health of the public at large.

There has been a lot said about short cuts from producer to consumer. Now, can any of you imagine a *shorter* cut than to climb up into a cherry-tree as I have been doing, where the cherries are so thick you might just grab them with your mouth, without any need of even the "hand-to-mouth" method, as it is sometimes called?

CHEESE AS AN ARTICLE OF DIET.

Our readers may, perhaps, recall what I have several times mentioned—the use of cheese with my apples or other fruit at five o'clock in the afternoon instead of a regular supper; and I might say that during very much of all my life I have somehow craved cheese when eating much fruit. When I raised luscious watermelons on a gravelly southern slope on the hills of Summit Co., Ohio, when a boy, when we had nice melons my friends used to laugh at me because I wanted a little bit of rich well-ripened cheese to go with the melons; and when making a supper of the luscious juicy cherries mentioned in another column a piece of cheese to go with them seemed to make a complete meal and a "balanced ration." In fact, I do not know that I ever enjoyed any banquet or any other food in my life more than those luscious cherries with a piece of real good cheese.

In view of the above you may believe I was much interested in Bulletin No. 221 from the Ontario Agricultural College, entitled "Food Value of Milk and its Products." I turned over to where the greater part of the book is devoted to a discussion of cheese. It seems there have been made, both in the United States and Canada, some exhaustive experiments in regard to cheese and fruits. I have made a few extracts from the bulletin here and there.

FOOD VALUE OF MILK AND ITS PRODUCTS.

One pound of cheese will, however, furnish just about as much actual nourishment as two pounds of fresh meat.

Bread and cheese can be used in such amounts as to constitute what is called a balanced diet; *i. e.*, in such amounts as to supply the right proportions of muscle-forming foods in comparison with the energy value. But fruit added to the diet would render it more attractive and palatable, and favor digestion. It also tends to decrease the possibility of constipation. A case was investigated and reported by the Office of Experiment Stations, U. S. Department of Agriculture, of a man who lived for months upon a diet of bread, cheese, and fruit, and who remained in good health and active, and did not weary of the monotony of the diet. It will generally be found that the watery and refreshing fruits or succulent vegetables with their large supply of cellulose are a pleasant contrast to the concentrated and fatty cheese. Thus, when planning menus in which a cheese dish is the chief feature, pains should be taken to supply crisp, watery vegetables or fresh-fruit salads.

Economy would be effected if cheese were used in at least one meal a day with the deliberate intention of procuring the essential proteins from this source rather than from the more costly meats.

In connection with the use of raw cheese there is, however, one point that should be emphasized; and that is, it should be thoroughly masticated, otherwise the digestive juices do not readily penetrate the fatty matters of the cheese.

In the same connection attention is called to the food value of cottage cheese established by this work. This is another cheap and (to many) a very palatable product that could be introduced to a much greater extent in the dietary at a great saving in the total cost of food.

The primary objects of the Minnesota experiments were to study the digestibility of older cheese than had been used in the Connecticut experiments, and to study the digestibility of other varieties, as well as the so-called condimental value of some of the more highly flavored varieties. In these experiments the basal diet was bread and oranges, which were previously studied. The duration of each experiment was, as in the Connecticut experiments, three days.

The last sentence in the above reminds me that at one time when my apples were gone, and no other fruit seemed available, I selected some nice large navel oranges; and if you have never tried it I would suggest making a supper (or, if you choose, any one of the three meals of the day), by the use of two or three navel oranges and about two ounces of cheese.

One of the extracts I have given makes mention of the necessity of *thorough chewing* in order to enjoy cheese to the fullest extent. It is most imperative that we chew it until it is nothing but a liquid. This brings out a flavor and deliciousness that perhaps you never dream of until you have tried it. Many people have objected to cheese as being conducive to constipation. But that is because you do not use fruit enough with it to make a balanced ration. Use plenty of fruit, with cheese in moderation, and I am sure you will have no trouble along this line.

ROBBING SICK PEOPLE.

Mr. A. I. Root:—In looking over GLEANINGS I find in more than one number mention made of a "humbug toy" under the name of electropoise, oxydonor, etc. Can this oxypathor of the enclosed pamphlet be the same old foe? Within the last week a female agent has made her appearance among us, and has been very successful in a few days. Some three years ago we had an epidemic of infantile paralysis, and this woman is making a rich harvest among the parents of these unfortunate little ones. I fear I have made enemies of very old friends by trying to point out to them the impossibility of quick recovery in these cases; and it is such a cruel thing for this woman to raise false hopes, both in the minds of the parents and the poor little sufferers themselves, besides taking $30 for an utterly useless contrivance. In GLEANINGS for Sept. 15, 1910, you make mention of circulars explaining this fraud. If you still have them at hand, would you kindly send us one? The explanation of these contrivances sounds much like the one we have before us. We are printing a word of warning over our own signature, in our local paper, referring prospective buyers to your publication, *Rural New-Yorker*, also *Colliers' Weekly*, which published an article denouncing the oxypathor.

MRS. W. E. LAMMING.

Duncan, Vancouver Island, B. C., June 22.

My good friend, the oxypathor is the same old "foe" as you put it. In our last issue I made mention of a young friend of mine who is likely to lose his life because he listened to quacks. These people should be arrested and imprisoned if nothing else will cure them of deliberately taking money from the innocent and unsuspecting. I will say to our readers, the pamphlet in question consists of three or four pages and some drawings in regard to *constipation;* and they wind up with these words: "In this condition, fortunate is the person who secures an oxypathor. Its use impregnates the entire system with oxygen. Every pore in the body imbibes oxygen." Is it not strange that people of apparent intelligence can be humbugged by such a mere toy as the one mentioned?

TEMPERANCE

STATEWIDE PROHIBITION; AWFUL THINGS THAT WILL HAPPEN, ETC.

Just now the brewers and distillers are getting busy telling the people the consequences of rashly voting to put the drink business out of commission. Here is a clipping from the *Wyoming Ledger-Journal:*

Do you know that the distilleries of Peoria alone consume the equivalent of the entire corn product of the States of Illinois and Iowa as fast as it leaves the farms? Do you know that the production and distribution of alcoholic beverages all together give employment directly to about 1,200,000 people, representing a population of 6,000,000 out of a total population in the United States of 98,000,000? And if we figure those who would be indirectly affected, the number employed would reach about 2,000,000, representing a population of about 10,000,000.

I cannot just now give the statistics in order to show the tremendous exaggeration in the above figures; but if I am correct we are told by good authority that the entire amount of corn used in the production of liquors amounts to a *very small proportion* of the corn crop grown in the United States; so the statement in regard to the distilleries of Peoria, as given above, are almost an entire whole-cloth falsehood. Suppose it were possible to put in figures the annual cost to our nation of the crime resulting from the use of liquors, also the cost of hospitals and asylums to take care of the product of the liquor business, to say nothing of the loss of life annually, and the cost of sending our youth to fill drunkards' graves. The Anti-saloon Year Book, that I have already mentioned, gives us correct figures covering the whole disgraceful business.

But even if we admit that a certain number will be put out of employment if the distilleries are shut down, are not these figures largely or entirely offset by the number of those who are out of work because they helped to *dispose* of the product of those distilleries? If there is any economic connection between the liquor business and a steady job at work, it can be made plain only by an inside examination of the walls

of the penitentiaries of the country where men are plentiful and women hard to find.

WEST VIRGINIA SETS THE PACE.

Not only is the whole United States, but to some extent the whole wide world, looking toward West Virginia to see whether she will enforce the law very soon to take effect. See the following, which I clip from the Cleveland *Plain Dealer:*

TO BE A VERY DRY STATE.

What is declared to be the most stringent prohibition act on the statute-books of any State takes effect at the beginning of next month in West Virginia. If the law is enforced, West Virginia will be perhaps the driest State in the Union.

In 1912 the people ratified a constitutional amendment providing for state-wide prohibition, and the legislature of 1913 enacted a measure putting the amendment into force. West Virginia thus becomes the ninth prohibition State in the Union.

The West Virginia law makes it unlawful to make, sell, or give away intoxicating liquors anywhere in the State. Druggists and clubhouses cannot sell it; it is unlawful to advertise liquors by bill posts, circulars, newspapers, or otherwise in the State. A State superintendent of prohibition is provided to see that the law is enforced.

When it decided to be dry, West Virginia apparently decided to be very dry. The more than 90,000 majority cast in favor of the amendment would seem to justify the legislature's action, for 90,000 is a considerable majority in West Virginia.

Permit me to direct attention to the matter of liquor advertisements in newspapers. If I am correct, it is unlawful for any periodical in that State to accept any advertisement of intoxicating liquors. May God be praised that we have at least *one* State in the Union that dares undertake to throttle the enemy as West Virginia has done. Let us all pray that they may have the nerve to see that this law is *fully enforced.*

INTEMPERANCE—NOT HALF THE EVILS HAVE BEEN TOLD, EVEN IN GLEANINGS.

I believe in Terry, too, although I do not live up quite so closely to all his teachings, and I watch the garden and temperance columns of GLEANINGS with a good deal of interest. Furthermore, I believe that half of the evils connected with the liquor-traffic and its full dangers has not been told, even in GLEANINGS.

La Salle, N. Y., June 4. T. GREINER.

Right in line with the above statement by our good friend Greiner comes a sad incident that just happened right here close by our own home. A man 31 years of age was getting to be so intemperate that his wife went over to see her father-in-law to see if something could not be done. As a result, the father went over to see his son and to talk matters over with him. So far as I can learn the matter was discussed in a friendly way, the son promising to do better. But some way it came about that, as the father started to go home, the son offered him a drink. This indicates that the father was *also,* at least to some extent, intemperate in his habits. They drank together. After the father started for home the son drank some more; and as a result he imagined he was being imposed on, persecuted, etc., and then followed his father, who was part way home. He grabbed his father by the collar, and began to quarrel. The father, in self-defense, struck the son a blow with a broomstick and fractured his skull. The wife of the young man was a witness to this tussle on the road as she was on her way home. During the night the son died. The wife gave out that he had died from heart disease. The funeral followed, and the body was buried. It seems, however, the neighbors found out something about the quarrel in the road. The body was exhumed, and the old father is now to be tried for murder. It seems the father, his wife, and the daughter-in-law concluded to say nothing about the fight, thinking no one else knew any thing about it. Now for the question as to who should be punished. Shall we go on as we have been doing for ages past, punishing the men who commit murder when crazy with drink, and let the man who furnished the drink to people living in a dry county go free, and let the "traffic" *go on?*

THE GREAT "HANDICAP" ON HUMANITY.

We clip the following from the *Union Signal.* What do you think of it?

NO ALCOHOL FOR THIRTY YEARS.

If really, for once, the entire civilized race of mankind should abstain from alcohol for thirty years, so that a completely sound generation could come into existence, there would result a transformation, a raising of the whole culture anew, a heightening of the happiness and welfare of men, which could easily be placed beside the greatest historical reformations and revolutions of which we know any thing.—*Prof. Wilhelm Weygandt, of Wurzburg.*

BREEDING CRIMINALS.

The publishers of the book, "Old Age Deferred," have the following to say in regard to my extract from that book about breeding criminals:

We note that you have strong impressions as to the importance of having a right genealogy. It is pretty hard, however, in accordance with the Constitution of the United States, for one class of people to regulate the personal liberties of another class; and if we began that sort of thing, where would we end? An enthusiastic eugenist recently reports that within a century or so people who were regarded as average normal now would be shut up in an insane-asylum because of the great improvement brought about by eugenic methods. The medical profession, as a class, are not enthusiastic on eugenics.

F. A. DAVIS CO., Medical Publishers,
per A. G. CRANDALL, Adv. Mgr.
Philadelphia, Pa., June 29.

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

FOR SALE.—Orange honey; 120-lb. cases, at 9 cts. Sample free. JAMES MCKEE, Riverside, Cal.

FOR SALE.—Sweet-clover alfalfa-blend white extracted honey, fine quality, at 7½ cts. per lb. in 120-lb. cases, f. o. b. Cochrane, Ala. JOE C. WEAVER.

FOR SALE.—Best quality white-clover extracted honey in 60-lb. cans. State how much you can use, and I will quote price. L. S. GRIGGS,
711 Avon St., Flint, Mich.

FOR SALE.—As good grade amber honey as is produced in the South, 6½ cts. per pound, f. o. b. cars or boat, in 60-lb. cans. Sample, 10 cts. Deducted from purchase. Shipped from Jonesville, La.
H. C. AHLERS, West Bend, Wis.

HONEY AND WAX WANTED

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 173 So. Water St., Chicago.

WANTED.—Comb honey and beeswax. State what you have and price. J. E. HARRIS, Morristown, Tenn.

WANTED.—Honey, extracted and comb. Will buy or handle on commission. Beeswax—will pay highest price. HILDRETH & SEGELKEN, New York, N. Y.

FOR SALE

FOR SALE.—A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Full line of Root's goods at factory prices. E. M. DUNKEL, Osceola Mills, Pa.

FOR SALE.—500 cases of empty five-gallon honey-cans at 25 cts. per case.
J. E. CRANE & SON, Middlebury, Vt.

FOR SALE.—Better hives for less money. Beekeepers' supplies and standard-bred Italian bees. Write for catalog. A. E. BURDICK, Sunnyside, Wash.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. CO., Greenville, Tex.

FOR SALE.—25 cases empty five-gallon honey-cans, 2 cans to case, at 25 cts. per case, or $6.00 for lot.
F. X. FOREMAN, Meadville, Pa.

The A. I. Root Co's Canadian House, Dadant foundation, bees, queens, honey, wax, poultry supplies, seeds. Write for catalog. THE CHAS. E. HOPPER CO., 185 Wright Ave., Toronto, Ontario.

FOR SALE.—A 1½-h. p.; a 4-h. p., and a 6-h. p. gasoline-engine; buzz-saw and feed-grinder; saw-table; also 7-h. p. Indian motorcycle, all in good condition. RAY C. WILCOX, Groton, N. Y.

FOR SALE.—A few hundred cases of 60-lb. cans and cases, all in first-class condition. Must go, and at the low price of 20 cts. per case. Money order or registered letter. J. A. BUCHANAN & SONS,
Holliday's Cove, W. Va.

"Root" bee supplies and "American" honey-cans always on hand in carload lots. SUPERIOR HONEY CO., Ogden, Utah. (Branch at Idaho Falls, Ida.) Manufacturers of the celebrated "Weed Process" foundation. (Highest prices paid for beeswax.)

WANTS AND EXCHANGES

WANTED.—Best offer for a new garden cultivator and drill combined. Price $12.00.
E. J. SPAUGH, Burney, Ind.

WANTED.—To exchange a banjo, a 4 x 5 magazine camera, a photo button camera, for bees, poultry, or stock. G. A. HALL, Clifton Station, Va.

For Sale or Exchange.—Winton 7-passenger 40 h. p. auto. Would make fine truck. Also Seneca 4x5 plate camera, cost $18. Send your offer to
LEWIS L. WINSHIP, Springville, Erie Co., N. Y.

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1914. Our catalog and price list will be mailed to you free. Order early and get the discounts.
C. E. SHRIVER, Boise, Idaho.

REAL ESTATE

FOR SALE.—Bee-ranch, 160 acres, 150 stands of bees; plenty of water. $1350.
C. L. HICKSON, Fairbank, Ariz.

FOR SALE.—20-acre farm in the fruit-belt of New York. For full information address
CHAS. E. TUTTLE, Wolcott, N. Y.

FOR SALE.—One 80 and one 20-acre farm. Good soil and bee location. 225 colonies of bees and equipment. LEWIS FRANCISCO, Mosinee, Wis.

FOR SALE.—83-acre farm 30 miles from St. Louis; good fences, water, etc., including bees, farm tools, stock, etc.; $2250. F. L. MOORE,
3131 Bell Ave., St. Louis, Mo.

For Sale at a Bargain.—A 40-acre bee-ranch in the famous Ozark Mountains, close to a good town, and 40 good strong colonies of bees. For description address OZARK BEE RANCH, Rt. 3, Verona, Mo.

Owing to the death of the owner, this desirable home for sale—13½ acres 20 miles from Portland, Ore., on the Astoria R. R. Eight acres in orchard, mostly apples, winter varieties, all bearing. Good eight-room house with necessary out-buildings; also good fruit-house; fifty stands of bees with extractor, etc. Close to County road, and within ten minutes' walk of railway station. Apply to
MRS. FRANCES ROSS, Scappoose, Columbia Co., Ore.

BEES AND QUEENS

FOR SALE.—Untested Golden Italian queens, 60 cts. each. J. F. MICHAEL, Winchester, Ind.

Leather-colored Italian queens for sale. Send for price list. GEO. B. HOWE, Black River, N. Y.

FOR SALE.—Fine Italian queens. See my large ad. in this issue.
J. F. ARCHDEKIN, Rt. 7, St. Joseph, Mo.

Phelps' golden bees, $2.00 per lb. Common bees from outyards, $1.50 per lb.
C. W. PHELPS & SON, Binghamton, N. Y.

Three-band Italian queens. Tested, $1.00; untested, 75 cts. Ready May 15.
S. CLICK, Mt. Jackson, Va.

Try my bright queens. Select untested, 60 cts. each; $7.00 per 12. Safe arrival and satisfaction guaranteed. M. BATES, Rt. 4, Greenville, Ala.

Doolittle & Clark's Italian queens. Safe delivery guaranteed in the United States and Canada. Breeders, $2.50, $5, and $10; untested, $9 per dozen.
DOOLITTLE & CLARK, Marietta, Onondaga Co. N. Y.

Connecticut queens, three-banded Italians only; large and vigorous; ready May 15. Price list.
W. K. ROCKWELL, Bloomfield, Ct.

Select untested queens, 75 cts. each; bees, $1.25 per pound. All good; guaranteed to give satisfaction.
THE STOVER APIARIES, Mayhew, Miss.

Will sell Italian bees in August at $4.00 per colony in 8-frame Gallup hives. No disease.
G. H. ADAMS, Spring and Central Aves., Troy, N. Y.

Young tested queens, 85 cts. each. Bred from comb-honey stock which I have been selecting for 20 years. C. F. BENDER, Newman, Ill.

Golden yellow Italian queens my specialty. Untested, 75 cts.; 3 for $2.00; 6, $3.75; 12, $7.25; tested, $1.50. Address E.A. SIMMONS, Greenville, Ala.

Golden and leather Italian queens, 100, $60; 50, $32.50; 12, $8.25; 6, $4.50; 1, 75 cts.; tested, $1.50. BURDICK & MEEKER, Redlands, Cal.

Untested Italian queens 75 cts. each; six, $4.00; 1 lb. bees with queen in Root cage, $2.50. Circular and "Good Cheer" blotter free.
J. B. HOLLOPETER, Pentz, Pa.

Northern-reared queens of Moore's strain of leather-colored three-banded Italians. After June 20, untested, $1.00 each; 6 for $5.00; 12 for $9.00.
RAMER & GLUEN, Harmony, Minn.

QUEENS OF QUALITY.—Three-band, leather color, select untested, 75 cts. each; $8.00 per dozen. Satisfaction guaranteed. Circular free.
J. I. BANKS, Liberty, Tenn.

Queens by return mail, or your money back. See larger ad. Write for free booklet, "How to Transfer, Get Honey, and Increase."
J. M. GINGERICH, Arthur, Ill.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price $1.00; 6 for $5.00. WM. S. BARNETT, Barnett's, Va.

Rhode Islanders, get your queens near home.—My Italian queens won first prize at the Providence Agricultural Show. Limited number at $1.00.
O. E. TULIP, 56 Lawrence St., Arlington, R. I.

Bees and queens; three-banded Italians; 1 lb. bees with queen, $2.00; ½ lb. with queen, $1.50. Untested queens, one, 50 cts. each; 6, $3.00, 12, $6.00. Safe arrival. W. J. FOREHAND, Ft. Deposit, Ala.

Golden Italian queens, good layers and good honey-gatherers; tested, $1.00; select tested, $1.25; untested, 60 cts.; dozen, $7.00.
D. T. GASTER, Rt. 2, Randleman, N. C.

Golden queens; guarantee no disease. Mated, 1, $1.00; $10.00 per doz. Safe arrival guaranteed. Fine honey-gatherers, and gentle.
J. STUART SCOFIELD, Kirkwood, N. Y.

FOR SALE.—Reared from best stock obtainable, three-banded untested Italian queens; 1, 75 cts.; 6, $4.50; 12, $8.00. Safe delivery and satisfaction guaranteed. Let's get acquainted.
J. E. MCCULLEY, Rt. 3, Plainfield, Ill.

FOR SALE.—After June 20, fine golden Italians; untested, 75 cts. each; six, $4.00; tested, $1.25 each; few choice breeders, $3.00 each. No better honey-gatherers. Will resist brood diseases. Cash with order. EDW. REDDOUT, Box 43, Lysander, N. Y.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, $1.00; six, $5.00; tested, $3.00; breeders, $5.00 and $10.00. C. W. PHELPS & SON, 3 Wilcox St., Binghamton, N. Y.

High-grade queens by return mail. Tested, $1.25; warranted, 75 cts.; choice breeding queens, $2.50. Italian, Carniolan, or Caucausian virgins of any of the above strain, 3 for $1.00.
STANLEY & FINCH, 1451 Ogden Ave., Chicago, Ill.

Queens and Bees for Sale.—See our large advertisement elsewhere in this journal, and read The A. I. Root Co. letter to us regarding our queens. Write at once for large bee and queen circular.
THE PENN CO., Penn, Miss.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each, $1.00; six, $5.00; tested, $2.00; breeders, $5.00 to $10.00.
J. B. BROCKWELL, Barnett's, Va.

Italian untested queens by return mail. We guarantee our queens to satisfy you. No disease. They are bred for honey-producers. For the rest of the season they go at 50 cts. each, any number. If you are particular about your queens, we wish to supply you. W. D. ACHORD, Fitzpatrick, Ala.

Golden Untested Italian queens, $1.00; six for $5.00. These bees are gentle, prolific, energetic, and pretty. Under date of May 2 an old customer—Chas. Stewart, Johnstown, N. Y., State Bee Inspector—writes, "Received in fine condition 10 queens." Ready to mail. J. B. CASE, Port Orange, Fla.

Golden and three-band Italian and Carniolan queens ready to ship after April 1. Tested, $1.00; 3 to 6, 95 cts. each; 6 to 12 or more, 90 cts. each. Untested, 75 cts. each; 3 to 6, 70 cts.; 6 or more, 65 cts. each. Bees, per lb., $1.50; nuclei, per frame, $1.50. C. B. BANKSTON, Buffalo, Leon Co., Tex.

Try Forehand's three-band Italian queens. They are raised from imported stock, unexcelled for honey and gentleness. One untested, 75 cts.; 6, $4.25; 12, $8.00. Send me your order; and if not satisfied I will return money. Safe arrival.
N. FOREHAND, Rt. 2, Brewton, Ala.

Dunn's Golden Italian queens, bred strictly for business that produce a strong race of honey-gatherers. March 1 to Oct. 15: One, mated, 75 cts.; 6, $4.25; 12, $8.25; 50, $32.50; 100, $60.00. Tested, $3.00; breeders, $10.00. L. J. DUNN, Queen-breeder, Box 337G, Rt. 6, San Jose, Cal.

Requeen your bees this fall with young queens bred from Doolittle's best breeders. We have 500 or more choice untested queens on hand at all times. Prices 60 cts. each; $6.60 per doz. Delivery guaranteed. Nuclei, two-frame, $1.50; three-frame, $2.25. We have an apiary of a hundred colonies for sale at a bargain on easy terms. Particulars on request.
SPENCER APIARIES CO., Nordhoff, Cal.

Golden and three-banded Italians—ready March 1. They have been bred for three points—prolificness, gentleness, and honey-gathering qualities. Select untested, each, 75 cts.; six, $4.25; 12, $8.25; 50, $32.50; 100, $60; tested, $1.50; select tested, $2.00; three-banded breeders, $4.00; golden breeders, $5.00.
GARDEN CITY APIARY CO.,
Rt. 3, Box 86, San Jose, Cal.

FOR SALE.—Our three-banded leather-colored hustlers. Queens are bred from a few select colonies, the record-breakers out of over 700. Tested, $1.25; warranted, 75 cts.; untested, 50 cts.; select untested, 60 cts. Queens are ready by return mail. Satisfaction and safe arrival guaranteed. No disease. For large quantities write for wholesale prices.
BROWN & BERRY, Hayneville, Ala.

FOR SALE.—Three-banded Italian queens, from the best honey-gathering strains, that are hardy and gentle. Untested queens, 75 cts.; 6, $4.25; 12, $8.00; tested queens, $1.25; 6, $7.00; 12, $12.00. Selected queens, add 25 cts. each to above prices. Breeding queens, $3.00 to $5.00 each. For queens in large quantities, write for prices and circulars.
ROBERT B. SPICER, Wharton, N. J.

If you need queens we shall be pleased to fill your orders. Our business of rearing queens was established in 1886, and we are still mailing queens from the old stand. We know what it means to have a good strain of bees and queens that stand second to none. Three-band Italians only, that are bred for business, and free from disease. Tested queens, $1.00 each; untested, 75 cts.; $7.00 per dozen.
J. W. K. SHAW & CO., Loreauville, La.

Queens from a superior strain of 3-band Italians. Hardy, gentle, and they are hustlers. Mated, $1.00; $9.00 per doz.; tested, $1.50.
L. MORRISON, Rt. 1, Argenta, Ark.

Hardy three-band Italian bees and queens; gentle, prolific honey-gatherers; guaranteed purely mated or another queen; no disease. Select tested, $1.50; six, $7.00. Untested, $1.00; six, $50.0; 12, $8.00, by return mail. Colonies, $6.00. Nuclei, $3.00 with queens.
S. G. CROCKER, JR., Roland Park Baltimore, Md.

FOR SALE.—Extra-fine Italian queens that are bred for honey-gathering, reared from breeders of the largest and leading queen-breeders of the U. S. and Italy. Try them and be convinced of their good qualities. No disease. Untested, $1.00 each; ½ doz., $4.00; doz., $7.00; tested, $1.50 each.
F. A. SHEPARD, M. D., Liberty, N. C.

California Italian queens, goldens and three-banders, by return mail, select untested, one, $1.00; 3, $2.50; 12, $8.00; tested, $1.25. Bees by the pound a specialty. One 1-lb. $1.25; one 2-lb., $2.25. Safe arrival and satisfaction guaranteed. Correspondence invited. Circular free. J. E. WING,
155 Schiele Ave., San Jose, Cal.

Bees with improved and unimproved land in never failing alfalfa and sweet-clover-seed-raising locality. Bees with or without land, on easy payments; labor accepted as part payment; also bees in good isolated queen-rearing locality for early queens; can use a steady man.
OGDEN BEE AND HONEY CO., Ogden, Utah.

FOR SALE.—100 colonies Italian bees on Hoffman frames in lock-cornered painted 8-frame hives for $400. Also 50 colonies of Italian bees in 10-frame lock-cornered hives for $250; also 50 colonies of Italian bees in 10-frame lock-cornered hives with 11-inch-deep covers and super covers, for $275; also honey-extractor, supers, fences, frames, etc., at half price of cost to parties taking the bees.
H. C. LANE, Solon, Ohio.

Famous North Carolina bred Italian queens for sale—(red-clover three-banders); honey-gatherers, good as the best. Strictly reared from Geo. B. Howe's best breeders, mated with Root's, Moore's, Davis' select drones; bees that get the honey; free of disease. Untested, 1, 75 cts.; dozen, $7.50. Select untested, 1, $1.00; dozen, $9.00. Tested, 1, $1.25. Select tested, $1.50. Extra select tested, $2.00. Breeders, $3.00 to $5.00.
H. B. MURRAY, Liberty, N. C.

Three-banded Italians queens: Untested, 1, 75 cts.: 6, $4.00; 12, $7.00; select untested, 1, $1.00; 6, $5.00; 12, $8.50. One-frame nucleus, 75 cts.; two-frame, $1.50; three-frame, $2.25. To each nucleus add price of queen. Our queens are reared in a locality where there has never been disease, and reared from strong vigorous colonies. The apiary is under most competent supervision. Safe arrival and satisfaction guaranteed.
HORNER QUEEN & BEE CO., Ltd., Youngsville, Pa.

Queens by return mail or your money back. Guaranteed purely mated. J. E. Hand strain of three-banded Italians, bred for gentleness, honey-gathering and wintering. State Inspector's certificate. Select untested, $1.75; 6, $4.00; 12, $7.00; tested, 1, $1.00; 6, $5.00; 12, $9.00; select tested, 1, $1.25; 6, $7; 12, $13. Breeders, $4.00. Write for price on large orders; 10 per cent discount on 30 days' advance orders. Safe delivery and satisfaction guaranteed in U. S. and Canada. Reference, First National Bank. J. M. GINGERICH, Arthur, Ill.

It is all true blue. Try Seavey's improved three-banded Italians. Gentle, hardy, white cappers, hustlers for honey. Every colony wintered in 1912-'13; two yards; one yard run two years for comb honey without a swarm. Untested, 75 cts.; 6, $4.00; select untested, $1.00; 6, $5.00; tested, $1.25; select tested, $1.50; extra select, $2.00; good breeder, $5.00; best, $10.00. A square deal; no disease; try them, and be convinced. Over 20 years in the business. Delivery guaranteed.
A. J. SEAVEY, Rt. 2, Farmington, Me.

POULTRY

S. C. White Minorcas, $3.00 per 15; R. C. Buff Leghorns, S. C. Brown Leghorns, and Partridge Wyandottes, $1.00 per 15.
HILLCREST FARM, Winchester, Ind.

Runner and Pekin Ducklings and hatching eggs. White-egg strain. Blue-ribbon stock. Also drakes. Catalog for stamp.
THE DEROY TAYLOR CO., Newark, N. Y.

HELP WANTED

WANTED.—Young man, good habits, to learn bee business, by helping me the rest of the season. Comb, extracted honey, and queen-rearing. Board, and perhaps more to adept helper.
W. A. LATSHAW, Clarion, Mich.

WANTED.—Man for balance of season; 250 colonies; comb-honey supplies ready now; first good man gets place; good wages. Answer quick.
B. F. SMITH, JR., Cowley, Wyoming.

BEEKEEPERS' DIRECTORY

Nutmeg Italian queens, leather color, after June 1, $1.00 by return mail. A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York.

QUEENS.—Improved red-clover Italians bred for business June 1 to Nov. 15, untested queens, 75 cts. each; dozen, $8.00; select, $1.00 each; dozen, $10; tested queens, $1.25 each; dozen, $12.00. Safe arrival and satisfaction guaranteed.
H. C. CLEMONS, Boyd, Ky.

KIND WORDS.

Dear Mr. Root:—Your comment on Mrs. Porter's book, "Pollyanna," in GLEANINGS, some time ago, interested me, and since I have read the book I am glad indeed that you mentioned it.
Morrilton, Ark., June 26. J. M. POWELL.

Enclosed find one dollar in payment for GLEANINGS. This makes over 40 years I have taken Uncle Amos' GLEANINGS, and hope to take it much longer if he will continue his Florida and other writings.
Hesperia, Mich. N. E. COTTRELL

[We have quite a large list of forty-year-old subscribers, and we are proud of them. If space would permit we should be glad to publish their names and addresses. Some of them are veterans now—men who are well on toward the threescore-and-ten mark. ED.]

TOLERATING THE SALOON, ETC.

I want to commend your publication, GLEANINGS, and some of the sentiments expressed. Very few men have the nerve to mention Christianity along with their business. Your sentiments of disapproval of ecclesiasticism and its methods I read between the lines also.

I was in my old home city, Cincinnati, a month ago, and was asked to (and did) stand in the pulpit of the church organization where I attended as a boy 28 years ago, and told them of Kansas, and "roasted" those folks for tolerating the saloon a "good and plenty." I live only for the *usefulness* I can accomplish, and that starter may lead me into new usefulness.

I enjoy handling bees and chickens and the like, though I seem unable as yet to get into a position to devote more time to it.
Wichita, Kan., June 23. FRANKLIN L. PAYNE.

SPECIAL NOTICES

BY OUR BUSINESS MANAGER.

EIGHT-FRAME EXTRACTOR AT A BARGAIN PRICE.

We offer for $25.00 an eight-frame power extractor with ball bearings and power gear complete. It has been used for several years, but is in excellent condition. If ordered promptly it would be shipped from Tiffin, Ohio.

BEESWAX DECLINED.

As the season for a large use of beeswax in making comb foundation is now past, the market price is declining. Some dealers are offering us wax at three cents a pound less than they were asking two months ago. We mean to build up a reserve stock for next season, and will pay, till further notice, 32 cts. cash, 35 trade, delivered here at Medina, or one cent less delivered at our branches. As the wax must come here it is better to send it here direct if you have 100 pounds or more; and if you want goods in exchange they may be furnished direct from a branch office or agency if preferred.

Our output of foundation for the first six months of this year has been 179,019 lbs. That for May was 44,562 lbs.; June, 33,392 lbs., beating all former records.

BEES IN POUND PACKAGES.

With our 1000 colonies of bees at Medina we are better prepared to furnish bees in pound lots than ever before. For a limited time we will accept orders for lots of 10, 25, 50, and up to 100 lbs., at a considerable discount. State how many bees you can use, and we will name you a price. These bees are the celebrated Root strain that did such splendid work in Apalachicola, Florida. They are yellow three-banded bees. Remember, the price of bees in pound lots includes the bees only. The price of a queen will have to be added to that of the bees.

With a pound package, with untested queen, one can, by careful feeding, secure a full colony by Oct. 1. A booklet containing directions goes with each package of bees, telling the beginner or any one else just how to proceed to make up a colony. In August call for nothing smaller than 2 lbs. So it is important to order early.

HIGH-GRADE QUEENS CHEAP.

We have facilities in our own yards located at Medina and Uhrichsville, Ohio, about a hundred miles south of us, for raising about ten thousand queens this season. There are times when we have a surplus of queens, and at such times we will sell them at low rates. The cells are reared in two and three story colonies brought up to a high state of prosperity through scientific breeding or during a natural honey-flow as the case may be. We guarantee safe arrival. In case of unsuccessful introduction we will replace at half price. This stock is made up of the celebrated Root strain which has been tested out in Apalachicola for honey-gathering qualities. We have both the leather-colored and the bright-yellow three-banded Italians. We do not breed four and five banded goldens, Caucasians, nor Carniolans; but we can order them of responsible breeders. Back of all queens we sell, whether we rear them or not, is our positive guarantee, and most of our customers know what the Root guarantee is. The low price on the Root strain applies only at such times as when we have a surplus. When we do not have a surplus we will hold orders until we do, and then mail the queens.

SPECIAL NOTICES

BY A. I. ROOT

"SHEEP MANAGEMENT; FEEDING OF THEM," ETC.

The above is the title of a beautiful book of about 590 pages, quite fully illustrated. Although sheep have been a good deal out of my line, I was particularly interested in the chapter on sheep as improvers of fertility; also the chapter "Protecting Sheep from Dogs and Wolves." By the way, is it not a shame and a disgrace to our civilization that dogs (and generally useless ones) should be, in many places, almost the ruin of the sheep industry? The book is a very large and nice one, fully illustrated, and the price, $2.00, seems very reasonable. It may be ordered either direct from The O. Judd Co., New York, or from this office.

"THE HOME VEGETABLE GARDEN."

This is another book just out, nicely bound, containing about 100 pages, and in plain clear type gives brief directions for growing almost every thing commonly grown in the garden. A very commendable work is now being done, especially in our cities, in giving children the use of vacant land, and teaching them how to make garden. This book, I should think, would be especially adapted to the use of boys and girls, as it is very plainly and simply written. There are 24 beautiful full-page illustrations from photos. The price, postpaid, is $1.00. It may be ordered from The O. Judd Co., New York, or from this office.

"TEN COMMON HOUSE INSECTS."

The above is the title of a bulletin just published by the Ohio State University, Columbus, Ohio. The ten insects they have thought worthy of mention are, house-flies, mosquitoes, fleas, cockroaches, bedbugs, clothes-moths, carpet-beetle, house-ant, Indian-meal moth, and the saw-tooth beetle. This bulletin, it seems to me, should be in the hands of every housewife in Ohio; and if every housewife in the United States had a copy on hand for reference, I think it would save a lot of trouble. By the way, I wonder if the modern vacuum cleaner will banish clothes-moths and carpet-beetles as thoroughly as hanging the carpets or rugs out in the sun and pounding them. I do not discover that this bulletin makes any mention of the vacuum cleaner. Mrs. Root is just now delighted with one that works by electricity. The rooms in our new bungalow have all more or less lamp-sockets; and wherever there is such a socket the vacuum cleaner can be used. It is not as hard work as sweeping with a broom or a common carpet-sweeper. Not a particle of dust flies up in the room to fall again on the furniture or to choke the sweeper; and, best of all, she says it takes the dust out *more* thoroughly, if possible, than the most vigorous pounding, out in the sun and wind. So far as I know this bulletin is sent free of charge. Address Ohio State University, Columbus.

"SUCCESS WITH HENS."

Notwithstanding, it would seem, we have enough poultry-books already (and for some years to come), another one has just been put out with the above title. There are 234 pages, but no illustrations. I believe it is *generally* up to date; but I see nothing in it in regard to poultry-keeping in the South. As an illustration, in the chapter on mites the author closes up by recommending fumigation with sulphur. Now, how are we going to fumigate a poultry-house with sulphur or any thing else when the walls are all or nearly all of *poultry-netting?* Our readers may remember I once paid a dollar for a great secret for banishing mites. I found the whole thing useless in my Florida home because the directions were to seal up carefully all cracks and crevices.

I can hardly agree with the author in his suggestions about breaking up a sitting hen. He says, "When a hen becomes broody, let her sit for a few days in order to give her system time to recuperate, and at the same time make it easier for her to get out of the habit when she is once taken in hand for treatment." On the contrary, I should say, remove and shut up every hen you find on the nest when night comes. Possibly she will lay an egg, or perhaps two, after she has begun to act broody, but keep her shut up until she stops clucking, and you can get her back to laying very much sooner than if you let her sit for a few days.

The price of the book is $1.00, net; mail, $1.12. Address Forbes & Co., 443 South Dearborn St., Chicago.

Convention Notices

A joint field-day meeting of the Worcester Co. Beekeepers' Association and the Eastern Massachusetts Society of Beekeepers will be held on Saturday, Aug. 8, at the home of Mr. O. F. Fuller, in Blackstone, Mass. The committee has not as yet announc-

ed the program, but an interesting one is being prepared. J. S. WHITTEMORE, Sec.
Leicester, Mass.

The Eastern Massachusetts Society of Beekeepers (formerly known as the Massachusetts Society, etc.) will co-operate with the Worcester County Society of Beekeepers in a joint field-day meeting at the home and apiary of Pres. O. E. Fuller, of Worcester Co. Society, at Blackstone, Mass., Aug. 8, 1914. Well-known beekeepers, Dr. Burton N. Gates, of the Massachusetts Agricultural College, Messrs. Allen Latham, and A. W. Yates, of Hartford, Ct., and many others, are expected. A cordial welcome to all beekeepers is extended.

THOS. J. HAWKINS.

The annual field-day meeting of the Massachusetts Society of Beekeepers will be held at the bungalow of Henry W. Britton, Stoughton, Mass., Saturday, August 1, 1914.

PROGRAM.

11:30 to 12:30, social hour. 12:30 to 1:30, basket lunch. 1:30, meeting called to order by President Frank W. Frisbee. Business session; action on new members. Address by Mr. W. A. Small, of Walton, Mass. Subject, "Keeping bees in greenhouses." Musical selections, cornet and trombone, by Britton Bros. Address by Mr. E. C. Britton, of Canton, Mass. Subject, "How to handle bees without protection;" also demonstration. There will also be other speakers. A prize of a twenty-five-dollar hive of bees will be given to the person who brings in the largest list of new members. This will be a $10.00 leather-colored Italian breeding queen in observatory hive. For the second prize a leather-colored Italian queen. Prizes for the best display of comb and extracted honey from Carniolan, Italian, Caucasian, and other races of bees on exhibition. Matters of interest which will be on exhibition consist of observation hives, frames, fancy honey, and curios in the bungalow; also an expert with a hive of bees in his hat.

ACCOMMODATIONS.

Trains leave South Station, Boston, at 10:06 and 12:07 A. M., and return at 4:47 P. M. Electric cars leave Dudley Street to Mattapan and the Blue Hill Street Railway to Canton and Stoughton, every half hour. Automobiles at Stoughton Station.

Bring basket lunch. Hot coffee will be furnished.
Norfolk, Mass. LYMAN E. WARE, Sec.

The fifth annual field day of the Connecticut Beekeepers' Association will be held Saturday, July 18, 1914, at the apiary of T. L. Pratt, 5 Wilcox Street, Wethersfield, Ct. The following is the program:

Morning.—Inspection of apiary and appliances. Mr. Pratt, while not a beekeeper on a large scale, possesses an apiary that is a model of neatness and arrangement. He takes a genuine interest in his avocation, and a visit to him is an inspiration to the veteran as well as to the beginner. Registration of new members, collection of dues, etc.

Noon.—Basket lunch on the lawn. Be sure to bring this with you. Ice cream on sale. Coffee served free by Mr. Pratt.

Afternoon.—The program committee announces the following: Round-table talk and question-box; no assignment of parts, but all participate on the following subjects: Putting on and taking off sections; Kinks of the swarming season; Watching for foul brood; "Why beekeeping should be taught in the Agricultural College," paper by Arthur C. Miller.

Mr. Pratt's apiary is opposite the Connecticut State Prison, and Warden Ward A. Garner has very generously extended to the members of our association an invitation to visit the institution. After the afternoon program is finished a party will be made up and escorted through the prison. This is an unusual privilege, and we are indebted to Warden Garner for his kindness. Bring along friends, new implements, and ideas. Board Wethersfield (not Wethersfield Ave.) car passing City Hall, Hartford, going south at 12 minutes past the hour, and every 15 minutes. Leave car at Wilcox St., Wethersfield, and walk 200 feet west. Mr. Pratt's house is the fourth on the left.

Hartford, Ct. L. WAYNE ADAMS, Sec.

The following is the program of the field meeting of the beekeepers of southeastern Iowa and western Illinois and northern Missouri, to be held in Mt. Pleasant, Iowa, Tuesday, July 28. Program begins at 10 o'clock.

10:00 A. M.—Mr. Quinby and the Quinby hive, or the large versus the small hive,
J. A. Thomas, Mt. Pleasant.
10:30 A. M.—Marketing the Crop, Frank S. Pellett, Atlantic, Iowa, State Inspector of Apiaries.
11:15 A. M.—Italian versus the black bee,
Allie Hodson, Salem, Iowa.
Noon.—Basket dinner and social hour.
1:00 P. M.—The wintering problem,
J. C. Davis, Russell, Iowa.
1:30 P. M.—Bee diseases and how to handle them,
C. P. Dadant, Ed. *Am. Bee Journal*, Hamilton, Ill.
2:00 P. M.—Importance of organization among beekeepers, E. J. Baxter, Nauvoo, Ill.,
Pres. Ill. State Beekeepers' Association.
2:30 P. M.—Question of supplies,
J. I. Daniels, Fairfield, Iowa.
3:00 P. M.—Lecture on sweet clover,
Frank Coverdale, Delmar, Ia.,
White-clover Expert of Iowa.
3:30 P. M.—Buying or raising your own queens, and best methods, L. W. Elmore, Fairfield, Ia.
4:00 P. M.—Natural versus Artificial Swarming,
Samuel Lewis, Fairfield, Iowa.

Each one of the subjects will be open for general discussion. The place of meeting will be at the old court-house. All the beekeepers and friends within reach of Mt. Pleasant are invited to bring their families and a basket of dinner, and spend the day. The Salem male quartet will furnish special music.

Salem, Iowa. J. W. STINE, Chairman.

KIND WORDS.

These frames are a delight. There is no kick coming on any thing from your house so far.
Alexandria, La., June 9. J. L. PLEDGER.

I received the last shipment to-day, and they were all right. Every thing came that we had ordered in good shape.
Irwin, Ohio, June 12. O. C. HOPE.

Will you kindly bring my thanks to Mr. A. I. Root for the sending of two dasheen bulbs, which arrived in perfect order. As we are going into winter just now, I will try to keep the bulbs till early spring, which comes in the first days of August.
C. H. W. KEHRER.
Rushenburg, Africa, April 19.

I live 57 miles from a railroad station, at an elevation from four to five thousand feet above the ocean. There is much buckwheat here. In two weeks my bees will be ready—two and three and some four stories. Some have twelve sheets of solid brood. I have only one leg. I lost one last Thanksgiving accidentally by a gunshot wound. Your old men at the Home of the Honeybees will remember how I used to switch lots of cars in and out of your factory. I was called "Skinny" for short. All my bees are in Root eight-frame hives, and every thing is up to date and painted white. Root goods for me. I get them at Los Angeles.
Neenach, Cal., May 15. J. A. LEEPER.

AN ULTIMATUM.

* * * * June 27.

The A. I. Root Co.,
Medina, O.
Dear Sir.

I write to you a few wards what is the mara we cand sell our honey here to Toepperwein & Mayfield co in San Antonio. there say no market for honey. what is the mara the wound by honey. now Mr. A. I. Root Co. I write to you if you please send me name of sombody wood by my honey I havent got much about 1000. pounds. now I asken (you) what is the rezen there wooden by honey. If we cand sell our honey we gon quit raze the bees then you cant sell the bee supplies to us then you got to go out the bissins because if we go out the bees you cant sell supplies. and please send me some name who wood by my honey.

very truly your,
* * * * *

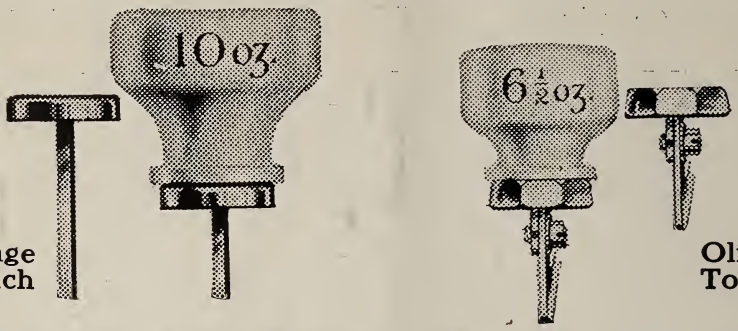
please ancer me son.

Gleanings in Bee Culture
CLUBBING OFFERS

Gleanings in Bee Culture (ONE YEAR)	with the A B C and X Y Z of Bee Culture, the leading text-book on beekeeping.	**$2.50**
"	with Dr. Miller's Fifty Years Among the Bees.	**$1.50**
"	with W. Z. Hutchinson's Advanced Bee Culture.	**$1.50**
"	with T. B. Terry's great book, How to Keep Well and Live Long.	**$1.50**
"	with Milo Hastings' book on practical poultry culture, The Dollar Hen.	**$1.50**
"	with the new revised edition of The A B C of Potato Culture, by T. B. Terry and A. I. Root.	**$1.00**
"	with a choice of any one of the following books from GLEANINGS library: Townsend Bee-book, Management of Out-apiaries, Alexander's Practical Bee Culture, Natural History of the Honeybee.	**$1.00**
"	with a Root Standard Smoker (tin); diameter of the barrel 3¼ inches. One of the best smokers made, both in principle and construction.	**$1.75**
"	with a No. 2 Bee-veil. This veil is made of cotton tulle with silk tulle face, and is adjustable to any medium-sized hat. It has an elastic cord in both the upper and lower hems.	**$1.35**
"	with a pair of Bee-gloves. Our special bee-gloves are made with long sleeves and of heavy drilling for wear in the bee-yard. (Sizes: Small, medium, or large).	**$1.25**

Canadian postage on each of above combinations 30c extra. Foreign postage 60c extra.

The A. I Root Company
Medina, Ohio



TYPEWRITER TOUCH BY ACTUAL WEIGHT

Now mark the story this test tells. To operate the average typewriter requires a 10-ounce pressure on the keys. Some 7½, some 13½. Mark that the Oliver writes at 6½ ounces—scaled down to *50% lighter!* And it wins its leadership in other points, too.

Here again a service to the world—the new model Oliver—the Silent Seven. A benefaction to all mankind. Labor of thousands lightened. With touch so sensitive that experts marvel—the weight of your finger, tapped on the key.

You Can Prove It

Place some small, flat object on a key of the average typewriter. Add enough objects to make the key write. Now perform this experiment with the Oliver No. 7, set at equal tension. Then weigh the two sets of objects. Your nearest druggist can do so if you have no handy means.

Others have made this demonstration. The result is as interesting as it is *conclusive.*

Speed Test

Many are misled by the operator's performance. Oliver capacity exceeds all human pace. And before it leaves our factory we run each typewriter by mechanical tester — each key at a speed no human hand can reach.

Yet, without once piling the letters.

Easy for the Novice

Now all who can touch a key can write at once. Start the first day your Silent Seven arrives. No schooling necessary — no skill. Just the normal practice that comes as you operate.

The Silent Seven

This brilliant triumph has all our epoch-making inventions — visible writing, visible reading, fewest keys, and Printype if desired. To these have been added the cushioned keyboard, anchor-keys, and automatic improvements. With the new paper holder no care is needed—your sheet cannot crumple.

The return of the carriage advances your paper to another line—our famous automatic spacer. It prevents you writing on the line just written. Now the hardest thing to do with the Oliver is to make mistakes.

17 Cents a Day

Our popular purchase plan applies to the new Silent Seven. And we give you by careful estimate *25% more value!* Yet we have not increased the price one penny.

The OLIVER Typewriter No. 7

The Standard Visible Writer

De Luxe Book Free

It fully pictures and describes the Oliver. It coaches you on points worth money if you ever use or own a typewriter. A postal brings it by return mail, free. Write today.

Apply for Local Agency

and make *every* hour pay you a profit. No experience necessary. For we give you exclusive sale in your town and train you free thro our home course of salesmanship. Over 15,000 honest hustlers now making handsome incomes. Send for "Opportunity." Book free and our special agents' Proposition. Tell us why you think you can make good. Write before your territory's assigned.

The Oliver Typewriter Co., Oliver Typewriter Bldg., Chicago